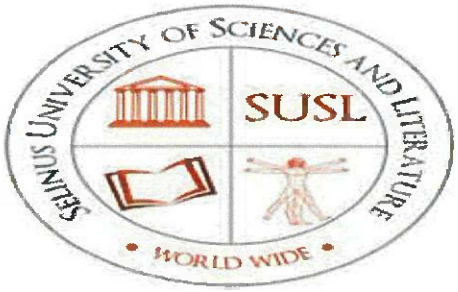

SELINUS UNIVERSITY OF SCIENCES AND LITERATURE

INSTITUTE OF GRADUATE STUDIES AND RESEARCH

Department of Sports Psychology

ATHLETE'S PSYCHOLOGY AFTER A SERIOUS INJURY, HIS REHABILITATION AND RECOVERY BACK TO TOP PERFORMANCE LEVEL

(Ph.D. Thesis)

by ARISTOTELOUS DIMITRIS

Doctor of Philosophy

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Abstract

This study was aimed at identifying the impact of athlete's psychology after a serious injury, his rehabilitation and recovery back to top performance level.

Psychology is the science that helps people better recognize themselves and their abilities to study psychologists and spiritual factors that influence or accept its influence participation in sports in physical activity, seeks out the elements that are importance for the performance of athletes and their help to cultivate and develop.

In the contents of this study, students will be able to, as future rehabilitation coaches, to help their athletes cope with pain and negative emotions and keep their level of motivation high in all its phases rehabilitation and all the challenges they face.

These techniques usually involve its management pain, goal technique, positive self-dialogue, mental imagery, relaxation, and education of the athlete.

I presented theoretical models contextualizing the sport injury, the motivational process underlying the recovery, and the influence of social and contextual factors.

Also, i focused on the possible psychological interventions and their effect on the rehabilitation process.

With increasing attention given to the development and implementation of psychological interventions during the sport injury rehabilitation process, there is a need to document the effectiveness of these interventions.

The purpose of this review was to summarize the findings of the effects of psychological interventions in reducing post-injury psychological consequences and improving psychological coping during the injury rehabilitation process among athletes.

I included interventions that directly intervene on injured athletes' psychological outcomes (e.g., psychological consequences, psychological coping and re-injury anxiety) and utilized psychological strategies including imagery, goal setting, relaxation, and other common techniques during the post-injury rehabilitation period.

Issues related to emotional disturbance, motivation, self-esteem, focus of control, and self-efficacy can have profound effects on patients' compliance, athletic identity, and readiness to return to sport. Psychologist may improve patient outcomes and increase return-to play rates among athletes.

Key words: post-injury psychological consequences, psychological coping, re-injury anxiety, imagery.

Declaration

I hereby attest that I am the sole author of this thesis titled, **"Athlete's psychology after a serious injury, his rehabilitation and recovery back to top performance level",** and that its contents are only the result of the readings and research i have done".

I hereby declare that all the information in this research was obtained and presented in accordance with academic rules and ethical conduct, and i fully cited all the references, materials and results that are not original to this work.

Date ..... 8/10/2020 .....

Signature .....

Acknowledgment

My appreciation goes to a number of my previous Professors at the National and Kapodistrian University of Athens, Greece, who very patiently guided me throughout this thesis.

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My special thanks to the management of Selinus University of Sciences and Literature for giving me the opportunity to study in this noble institution.

I am very grateful to my family, especially my dear father Yiannos Aristotelous, an ex-basketball player and an ex national team basketball coach, for sacrificing a lot to make sure, i study and eventually graduate.

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May God Almighty bless and reward you all. Amen.

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CHAPTER ONE:

1. INTRODUCTION

Returning athletes to competition after sport injury is a key role of athletic trainers.

Negative psychological responses to injury often result in a lack of rehabilitation adherence or prolonged recovery rates prompting those who work with injured athletes to look for additional strategies to improve the overall rehabilitation process.

Psychological skills can be used during sport injury rehabilitation to motivate athletes to adhere to rehabilitation, to increase speed of recovery, to control anxiety levels, and to enhance self-confidence.

However, those who hold negative attitudes toward certain psychological skills are less likely to implement them during rehabilitation. Thus, receiving formal training probably would increase positive attitudes toward the use of psychological skills and would strengthen the likelihood that they are used during rehabilitation.

Research though indicates that psychological skills are not only important but essential during the rehabilitation of injured athletes.

For example, imagery is effective in reducing performance anxiety, thus, imagery and other psychological skills may have a parallel role as anxiety-reduction techniques within sport injury rehabilitation especially when athletes feel pressured to return to competition too soon after injury.

Anxiety and negative stressors are widely reported psychological issues that accompany athletic injury. Although many models attempt to understand athletes' psychological responses to injury, the integrated model of response, which is a stress-based cognitive appraisal model, has received the most empirical support to date.

It purports that an athlete's response to injury (cognitive appraisal) is influenced by both personal and situational factors and that the associated behavioral and emotional responses (e.g., adherence to rehabilitation, negative self-talk, frustration) have an effect on the physical and mental recovery from injury.

In addition, the model emphasizes that coping skills, including mental imagery, relaxation, positive self-talk, and goal setting, are instrumental in influencing positive behavioral and emotional outcomes (e.g., adherence, anxiety reduction, positive outlook).

Sport injuries frequently have profound negative consequences on the physical health of sports participants.

They also have the potential to cause a great deal of psychological disturbance through increased anger, depression, anxiety, tension, fear, and decreased self-esteem.

Sport injuries often result in an immediate imbalance and disruption to the lives of the injured athletes including loss of health and achievement of athletic potential.

In extreme cases, injuries result in a permanent disability or even death.

Such functional loss or the inability to continue sports participation can be devastating and hinder the recovery process, and consequently affects the way athletes mentally deal with future injuries.

Thus, including a component that addresses psychological recovery from a sport injury in the traditional injury rehabilitation program becomes critical to preventing and/or reducing negative psychological consequences resulting from the injury and promoting return to active involvement in sport-related activities. Increasing attention has been given to the development and implementation of psychological interventions during the sport injury rehabilitation process in recent years.

Many sport injury rehabilitation programs are beginning to integrate psychological interventions into the treatment regimens in order to expedite both physical and psychological recovery from injury.

The psychological techniques commonly used with injured athletes in these interventions include relaxation, mindfulness, imagery, goal setting, and stress management.

Existing studies indicated these psychological interventions help reduce negative psychological consequences, improved coping skills and reducing re-injury anxiety.

As a result of improved psychological well-being, injury recovery period is shortened, and injured athletes frequently return to play sooner. Despite growing interest in utilizing psychological interventions, few controlled outcome studies have been published.

Empirical evidence demonstrating that psychological interventions decrease negative psychological consequences or increase psychological coping still remains limited.

Sport history is replete with examples of athletes and teams that appear to have had a knack for coming through when the pressure is on and conquering the competition despite the obstacles and distractions they encountered in their quest for excellence.

Although some unexpected successes can be attributed to physical factors, environmental influences, and plain bad luck on the part of the vanquished athletes and teams, other instances can be credited to the influence of psychological factors. It is these psychological influences on sport performance that constitute the primary focus of this thesis.

Sport injuries threaten athletes' career and success (O'Connor et al., 2005).

Some injuries are little and do not have any impact, instead others can end a career and have consequences on athletes' quality of life.

Moreover, injuries determine rehabilitation costs, which concern athletes and/or sport organizations, in terms of monetary costs or lost time.

Over their careers professional athletes spend thousands of hours in training. Despite this, or because of, they have a risk of injury higher than normal exercisers (Brewer, 2009).

For example, in windsurfing there is a probability of 0.22 injuries every 1000 hours of practice among amateur performers, but these data rise till 13 injuries every 1000 hours among professional performers (Perez-Turpin et al., 2012a). Vitali (2011) provides the example of gymnastics and football: the 70/80% of professional female gymnasts occur in an injury every season and the 75% of professional football players (both men and women) have injuries every season.

Research on recreational sports (Van der Sman et al., 2003; Perez-Turpin et al., 2012a) shows that differences may be found between different sports. For example, in skiing and snowboarding there are 2-4 injuries every thousand days of practice, in indoor climbing there

are 1-3 injuries/1000 days, while noncompetitive windsurfing is relatively safe with a mean of 1 injury every thousand days of practice.

There are also gender differences.

According to US data about recreational sports men are generally more liable to occur in an injury if compared with women (NEISS, 2010).

For example, injured men in baseball are twice than injured women, and in basketball injured men are four times than women.

However, there are some exceptions: in horse riding injured women are more than men.

Unfortunately, these data do not consider the number of participants and do not provide any information regarding professional sports.

Research on elite performers is limited and the most of studies regards single sports. For example, PerezTurpin and colleagues (Perez-Turpin, Cortell-Tormo, Suarez-Llorca, Chinchilla-Mira & Carreres-Ponsoda, 2012) have examined the context of windsurfing evidencing how female athletes are generally more liable to suffer injuries, with an exception: during competition men occur in injuries more frequently than women.

The incompleteness of these data is due to the difficulty to uniform data from different countries, and collected in different ways (Van der Sman et al., 2003).

Moreover, there is a lack in the literature about epidemiology of sport injuries among professional athletes, and therefore it is not possible to determine the gap between professional and recreational sport, and the incidence of different risk factors on sport injury (Giustini & Cedri, 2002).

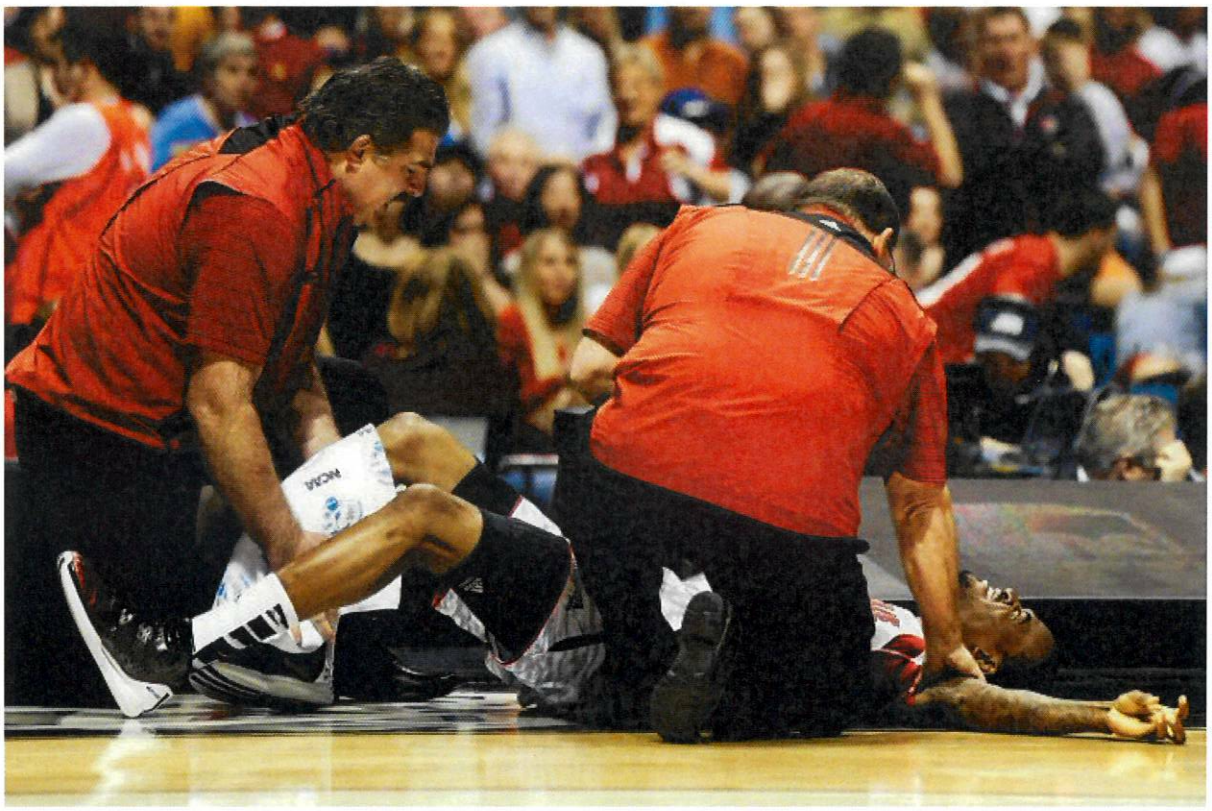
Probably because of this shortage of data, there are few psychological studies on sport injury prevention; instead there is a consistent research on rehabilitation process.

That is why i chose to review the literature on psychology of sport injury rehabilitation. An injury does not affect exclusively physical capabilities, but also contextual and psychological aspects. In fact, in some situations, injuries can deprive athletes of their compensation increasing life-stress, and determine fear to reinjury, sensation of loss, negative emotions, and other mood disturbances (Sparkes, 2000; Vergeer, 2006; Naoi & Ostrow, 2008).

The negative impact of injury depends only in part on how much time athletes have spent in sport: high performers, who have a stronger athletic identity, experience major feeling of loss and mood disturbance.

However, they also have a better reaction to the injury, probably because they have more psychological resources to cope the situation (Rees, Mitchell, Evans & Hardy, 2010).

For these reasons, during the rehabilitation process athletes may benefit of the support from relevant social agents and of the intervention of a psychologist.



"I had lost a lot of confidence during the long layoff. And for a long time after i returned, i still held back. All i could think about was protecting my knee from another injury."

As Magic Johnson's quote suggests, returning to sport following a serious injury may be a difficult transition for athletes. Too often, however, coaches, practitioners, and athletes equate psychological readiness to resume sport participation with physical readiness.

Research over the past ten years indicates that this assumption may be inaccurate (e.g., Bianco, 2001).

Athletes' psychological reactions to their return to sport may have important implications for their subjective well-being and their return-to-sport outcomes (e.g., confidence levels, quality of performances).

The psychological factors influencing a return to sport has gained increased research attention. In the current investigation, i explored professional basketball players' perceptions of the psychosocial and behavioral factors facilitating a return to performance equal to or exceeding previous performance standards.

I also sought to describe athletes' experiences – both positive and negative – of returning to sport following injury recovery.

Ten Italian professional male basketball players (age range 22– 36 years), were retrospectively interviewed in relation to three time-periods: (1) from the commencement of rehabilitation to their first official competition, (2) the first official competition, and (3) the 6-months following the initial competition.

Qualitative content analysis of the data revealed numerous themes across the three time periods. Regarding Period 1, participants indicated that social support, investment in

rehabilitation and training programs, coping skills and motivation were fundamental in reaching pre-injury performance levels.

During their first official game (i.e., Period 2), athletes reported that realistic performance expectations, focusing on the performance, positive emotions, motivation, arousal, and social support facilitated their return to sport.

Athletes, however, also described a predominance of factors that hindered their return to preinjury levels (i.e., low confidence in personal abilities, decrements in skill execution and dysfunctional physical sensations).

Moreover, participants typically described a substandard level of performance during their first competition back following injury.

In recounting experiences during the 6 months following their first official game, basketballers reported improvements in skill execution and highlighted the importance of coping skills, motivation, and social support.

The process of restoring self-confidence in one's ability to successfully perform was perceived as crucial in enabling participants to move beyond a mere return to sport to a return to high performance – that is, to reach a level of proficiency equal to or exceeding previous performance standards.

Return to Pre-injury Levels in Basketballers support the relevance of cognitive, emotional, and behavioral responses highlighted in the Integrated Model and suggest the importance of addressing psychological factors throughout the return-to-sport process.

Finally, results from the present study hold several practical implications for athletes' aiming to achieve a return to pre-injury levels.

Return to sport following injury is a critical moment in the life of athletes and often represents the culmination of weeks to months (or longer) of rehabilitative efforts (Podlog and Eklund, 2006).

For professional athletes, whose career prospects likely depend upon the ability to compete at or exceeding their pre-injury status, the culmination of injury rehabilitation is a return to full performance levels (Johnson and Podlog, 2014).

Research on the return to sport has grown in recent years.

Studies have highlighted the fact that returning to one's pre-injury level is a complex and multifactorial process, directly and indirectly influenced by a range of physical, psychological, and social factors (Podlog and Eklund, 2007; Ardern et al., 2016).

Indeed, recent meta-analyses have demonstrated that athletes' ability to attain or surpass pre-injury performance levels is not determined solely by the attainment of satisfactory clinical outcomes and physical functioning (Grassi et al., 2015; Ardern et al., 2016).

Rather, these reviews have highlighted the relevance of psychological factors in predicting return to previous competitive levels, particularly in the context of elite sports where achieving optimal performance is of critical importance (Schilaty et al., 2016).

To examine the role of psychosocial factors in predicting recovery and return to sport outcomes, researchers have developed a few conceptual models.

One of the most prominent and well-tested models is the Integrated Model of Psychological Response to the Sport Injury and Rehabilitation Process (Wiese-Bjornstal et al., 1998).

The model which was developed based on adaptations of stress and coping theory (Lazarus and Folkman, 1984) proposed that the way an athlete appraises their injury (cognitive

appraisal) determines subsequent emotional (e.g., frustration, denial, anger, happiness, relief) and behavioral responses (e.g., adherence to rehabilitation, use of psychological skills).

Further, a host of personal (i.e., injury specific, individual difference, demographic, physical) and situational (i.e., sport, social, environmental) factors are proposed to influence cognitive, emotional, and behavioral responses to injury.

The post-injury psychological response process is considered cyclical and dynamic, reflecting the recursive influence between thoughts, feelings, and actions.

Finally, Wiese Bjornstal et al. (1998) proposed that psychological responses influence short and long-term psychosocial and physical recovery outcomes.

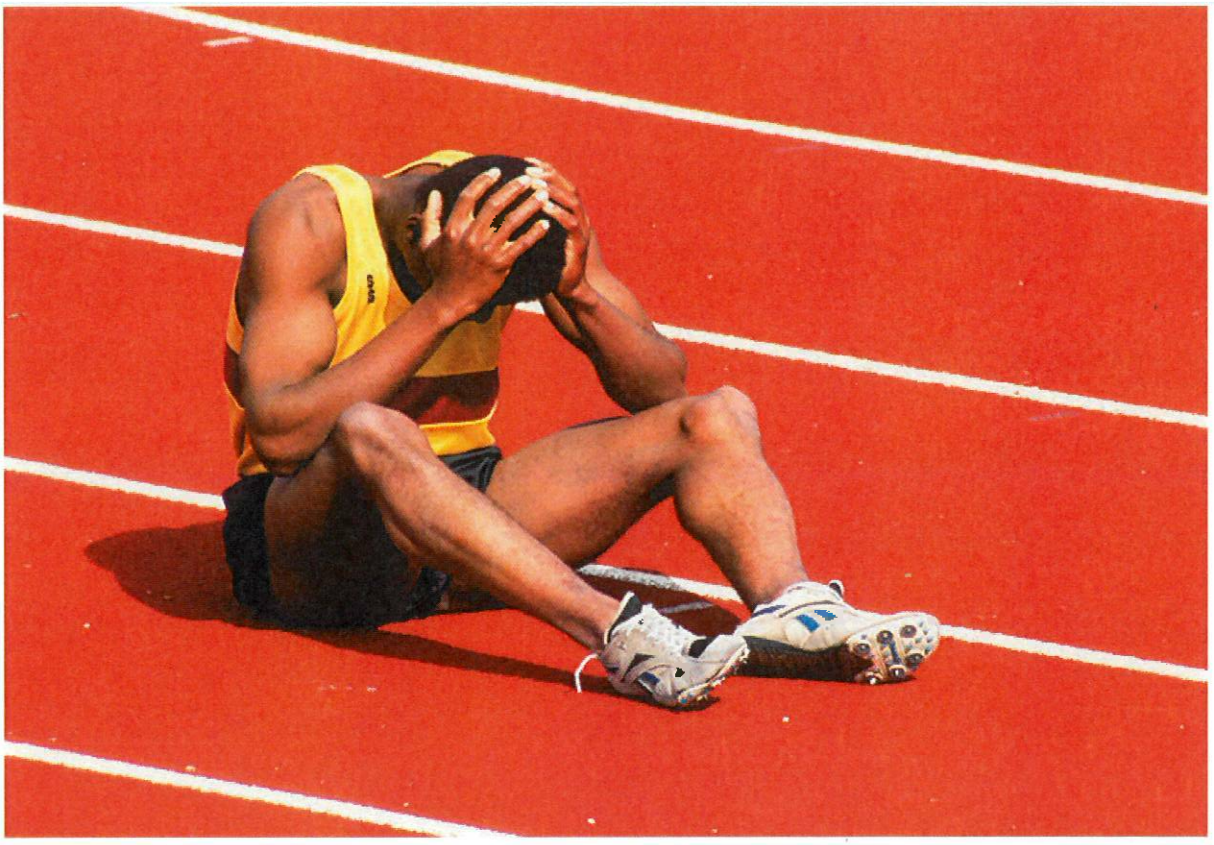
As indicated, a key recovery outcome, particularly for elite performers, is the ability to return to or surpass pre-injury performance levels.

Strong empirical support has emerged for numerous contentions articulated in the Integrated Model. Specifically, scholars have found a multitude of injury-related cognitions, emotions, and behaviors from initial injury occurrence to a return to play; links between personal and situational factors and athlete responses to injury (for a review see Brewer, 2007); and relationships between responses to injury and rehabilitation outcomes (for a review see Brewer, 2010).

With regards to cognitive appraisals and emotional responses, consistent findings suggest a range of negative injury appraisals (difficulties managing pain and loss of physical function, social isolation, summoning motivation) and emotions (devastation, frustration, helplessness, fear, depression, and resentment), with positive perceptions typically increasing as recovery progressions become apparent (Carson and Polman, 2008; Stoltenburg et al., 2011; Ruddock-Hudson et al., 2012, 2014).

Of particular relevance to the current study, increasing evidence supports links between psychosocial and behavioral factors and recovery outcomes (e.g., Ardern et al., 2011, 2013a).

For instance, researchers have shown that factors such as motivation (Podlog and Eklund, 2005), re-injury apprehensions (Ardern et al., 2011, 2012, 2013b), and psychological readiness (Ardern et al., 2014) predict return versus non-return as well as the quality of athletes' post-injury performances.



1.1 Purpose

Consequently, the purpose of this chapter is to examine the psychosocial issues associated with the return-to-sport transition following serious injury.

At the beginning by examining the model and the stages of Return to Sport Model - used to describe the return to sport following a serious injury.

Thereafter, by discussing some of the empirical literature that has examined the psychosocial stressors associated with the return to sport, drawing from the recent qualitative research involving high performance athletes (Podlog & Eklund, 2006) and coaches (Podlog & Eklund, in press).

Finally, by discussing the implications of these findings and offer strategies for clinicians, coaches, and practitioners aiming to prevent and/or reduce athlete stressors during the return-to-sport transition.

1.2 Significance of research

Athlete psychology is an important factor for sports. After this study we will know techniques to improve the athlete's psychology after a serious injury and so it will be especially useful knowledge for coaches and physiotherapists

1.3 Research questions

Upon completion of this chapter, the reader / student will be able to:

- Know what behavioral problems and what cognitive challenges one is facing injured athlete during his recovery and understand them his reactions.
- Know and suggest counseling techniques that can applied by both physiotherapists and rehabilitation coaches specifically tailored to the needs of the injured athlete arising during its restoration.
- Help his injured athlete deal with pain and negativity emotions and maintain his motivation throughout the rehabilitation program until his final reintegration.
- Train the athlete in the application of simple counseling support techniques which he can apply depending on the problem he faces consequently his injury.
- Distinguishe the different phases of recovery and apply different each time counseling techniques tailored to the needs of the athlete.

1.4Delimits – Restrictions

They are all athletes who were injured, mostly most of the research was from team sports, especially from top level Basketball players.

CHAPTER TWO:

II. Background of Literature review

2.1 Injury epidemiology in sports

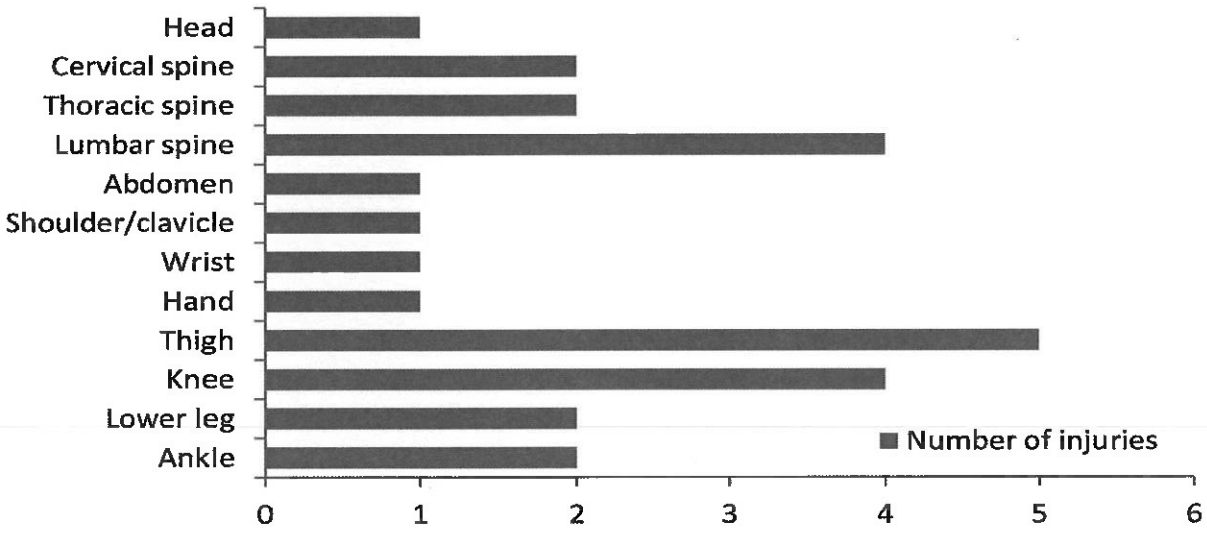
The appearance of high and at the same time asymmetric loads, leads to high epidemiological occurrence of injuries due to involvement in sports, both individually and as a group.

The analysis of the etiology (risks of injury) and the need for comparisons between them urged epidemiological research in this area to be extended in addition to simply recording injuries and collecting supplements information, such as exposure time and frequency of injuries (Inklaar, 1994).

Thus, the quotient of the number of new injuries in a chronicle period of exposure to injury of these athletes, is what expresses the epidemiology of injuries in various sports (Lindenfeld et al. 1980).

Based on the above, as the main quantitative data in the recording of the number of new injuries is used to participate every 1000 hours in training or struggle for research epidemiological studies focusing on analysis of injuries in sports in order to quantify the occurrence and understanding their etiology (Bengtsson et al. 2013; Drakos et al. 2010; Hootman et al. 2007; Olsen et al. 2005; Junge et al. 2004).

But because of significant differences, both in the methodology of the epidemiological studies as well as the variety of motor patterns of different sports, the comparison between sports in terms of their epidemiological appearance injuries, remains a difficult part.



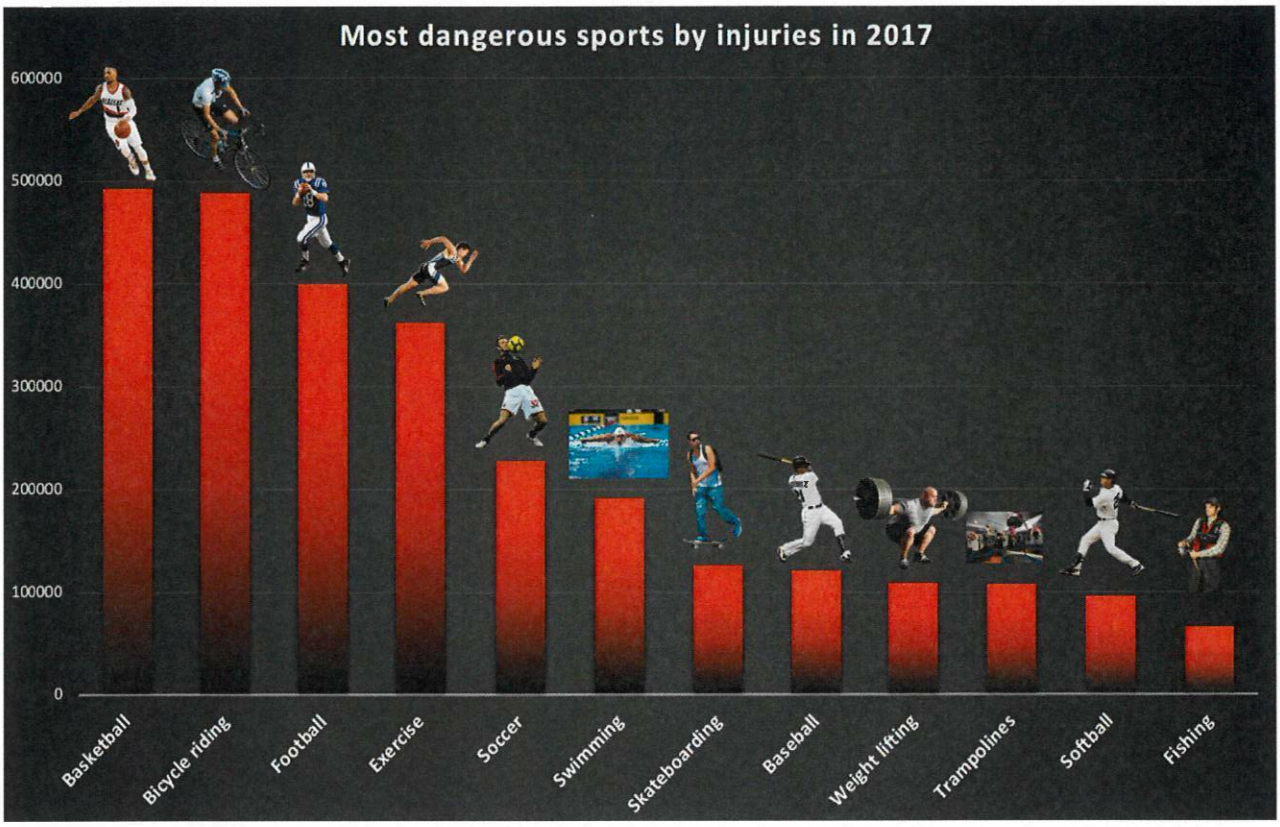
Number of injuries by location, within the Great Britain Olympic Team. *Note*: one injury location unknown.

Palmer-Green, D., & Elliott, N. (2015). Sports injury and illness epidemiology

2.2 Sports prone to injury

The sports in which contact with the opponent or with sports equipment, athletes are much more likely to suffer any type of injury, in relation to non-contact.

That it is expected, because in these sports athletes deliberately hit and collide with each other or with special equipment (including ground) with great force, especially when the competition is great. Such sports are American football, soccer, mixed martial arts and taekwondo, etc. (Grant et al. 2014; Engebretsen et al. 2013; Junge et al. 2009). (Figure 1.3.1.)



As you can see, Basketball is the most dangerous sports by injuries. It is also a dynamic contact sport, shows one epidemiological occurrence of injuries.

There is a greater risk of injury in official competitions in relation to training. (Drakos et al, 2010).

The highest rate of basketball injuries (over 60%) concerns the lower extremities and the injuries with the highest prevalence are sprain in the ankle joint, the ligaments and osteochondral knee injuries, as well as rupture of the anterior cruciate ligament, meniscus injuries, (patellar chondropathy). (Barber Foss et al, 2014; Drakos et al, 2010)

2.3 Injury rehabilitation

When athletes sustain injuries, the immediate focus is generally on physical dimensions of the injuries, such as the location, magnitude, and ramify cations of the damage to body tissues. Nevertheless, from the occurrence of sport injuries onward, psychological factors are an integral part of the rehabilitation process.

For example, the pain and loss of physical functioning commonly experienced by athletes upon sustaining an injury have strong psychological components.

Pain is essentially a psychophysical phenomenon, and a loss of functioning can be defined in terms of behaviors in which athletes are unable to engage.

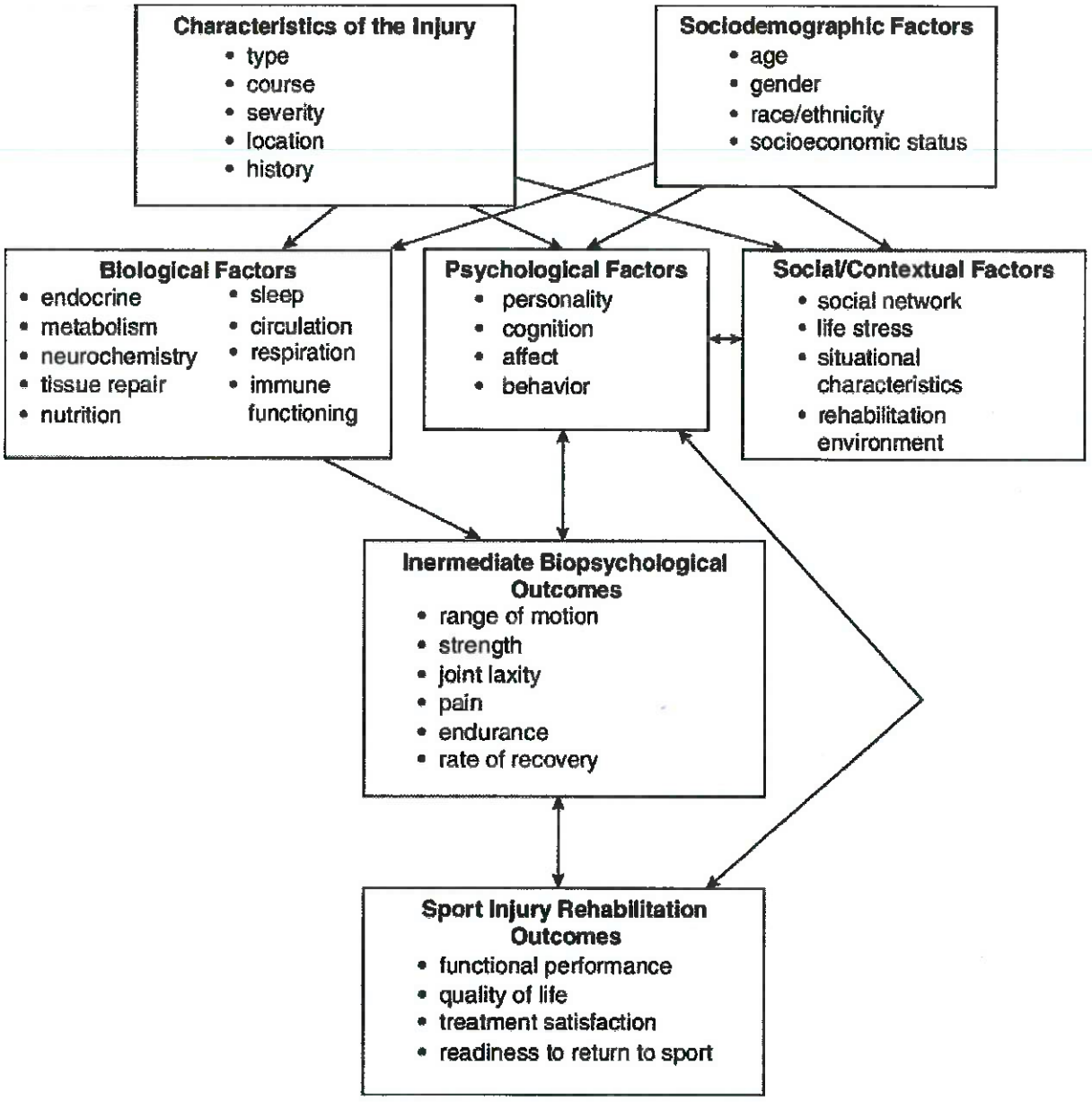
Not only has a wide variety of psychological effects of sport injury been documented, but psychological factors have been shown to affect the outcome of sport injury rehabilitation.

The biopsychosocial model offers a framework for understanding the role of psychological factors in the rehabilitation of sport injuries. In this model, psychological factors such as personality, cognition (i.e., thinking), affect (i.e., emotions), and behavior are thought to be influenced by both the characteristics of the injury itself and the demographic characteristics of the person sustaining the injury.

The emotional responses of a young athlete with a severe, acute injury, for example, might differ dramatically from those of an older athlete with a mild, chronic injury. According to the model, psychological factors affect and are affected by biological factors (e.g., tissue repair, circulation), social factors (e.g., social network, life stress), intermediate biopsychological outcomes (e.g., range of motion, strength, pain), and rehabilitation outcomes (e.g., functional performance, readiness to return to sport).

Of particular note, the outcomes on which the success of rehabilitation is largely judged are themselves predominantly psychological or behavioral.

Although the physical state of athletes helps to establish a potential of what the athletes are able to accomplish, it is generally what the athletes actually accomplish in the form of behavior (i.e., sport performance) that ultimately determines the outcome of rehabilitation.



A biopsychosocial model of sport injury rehabilitation (Brewer et al. 2002) (Re-printed with permission)

2.4 Sport psychology clients

Typically, athletes who consult sport psychologists are competitive, participating at the elite, professional, or university level.

Young athletes, master's athletes, and adult recreational athletes may also enlist the services of a sport psychologist.

It is common for sport psychologists to consult with coaches, offering information, and working collaboratively to address the psychological needs of athletes on the team.

Less frequently, sport psychologists may consult with sport administrators and sports medicine professionals to deal with issues of a psychological nature at the organizational or individual level.

2.5 The psychology of the injured in sports

Injuries are one of the most serious and painful parts of the career of the athlete regardless of the level of his performance / abilities.

Through the years, great progress has been achieved towards the recovery process whilst the average return time to racing action has been greatly shortened.

But often athletes present negative reactions and then fall into 4 categories. They are:

1. Grief reaction: There are different stages in the athlete's reaction during injury. These stages are usually initial shock, denial, depression, or anxiety. These stages are characterized by increased intensity, aggression, and reduced energy. These symptoms subside if there is progress in the recovery process.

2. Loss of identity: The injured athletes who have identified the ego with sports they feel a threat to their identity. This threat is particularly severe in cases of long-term injury or in cases end of sports career. There are many references in the literature for severe depression of athletes due to abrupt termination of their career.

3. Isolation: Athletes who have been injured are subject to an active one reducing their social interaction. This is because social interactions they had before the injury, were mainly in sports areas from which they are removed due to their injury. Simultaneously, there are many injured athletes who consciously move away from them playing fields, because attending team training is one tough process.

4. Fear and anxiety: It is a common phenomenon, especially in severe cases injuries, athletes feel uncertain about their athletic future, the which leads them to fear and anxiety. But this means reducing it self-confidence, as well as a generalization of doubt to other problems that face in their lives. Sometimes, all these feelings injuries have devastating effects on the

recovery process. Athletes, in this case, make an effort, try come back sooner and get frustrated more easily if they do not see continuity improvement.

Levleva and Orlick (1991) particularly emphasize the athlete's attitude towards his problem, stress management, social support and personality of the athlete.

The posture of the injured is believed to play an important role in disease progression.

Athletes need to realize that their recovery in sports activity depends on their positive attitude towards the problem there.

It is considered that those who have high levels of social support present less stress in similar stressful situations and also react better.

Athletes who strongly perceive the social support at the beginning of the recovery program is more likely to are based on sources of confidence that influence the recovery process (Maagyar & Dud, 2000).

Social support for injured athletes has several dimensions. Includes emotional support, that others in they listen to you, they take care of you, they are with you, it includes the information, the confirming your efforts, motivating or leading you to creative efforts, support you financially, have time, have knowledge and experience to help you (Bianko & Eklund, 2001).

Patients who are committed to his rehabilitation program Their injury tolerates more pain and they feel less uncomfortable than those who are not devoted.

The confidence or belief that one has that can meet the requirements of the rehabilitation process (e.g. type of exercise, duration, intensity, frequency) in such a way that it can to regain its functional capacity, seems to be an important factor in the progress of recovery.

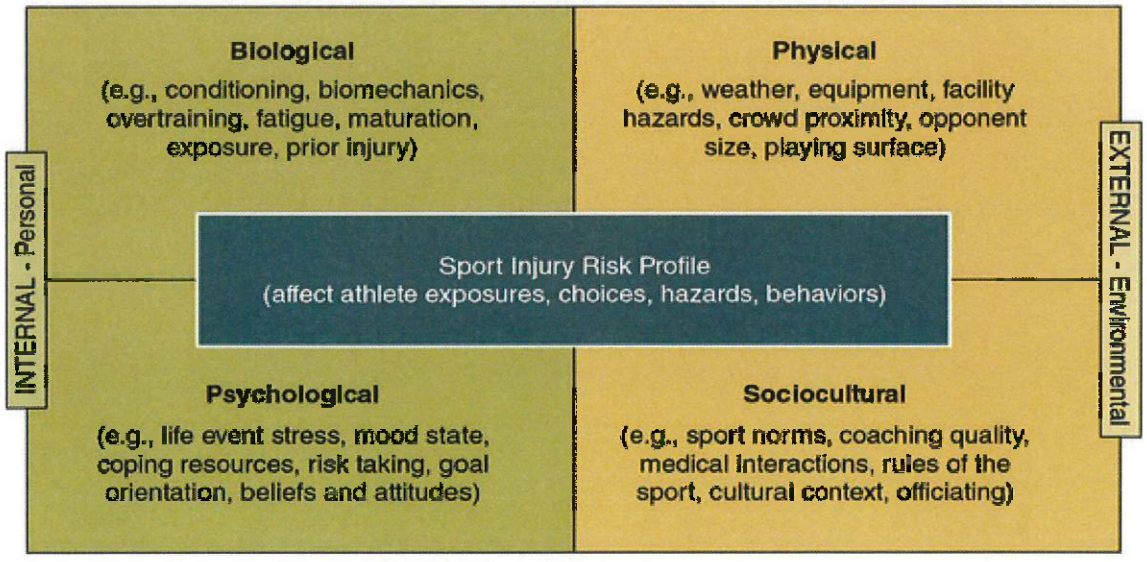
2.6 How athletes react psychologically to an injury

Athletes' reaction to injury has been described as reaction to stress or sadness (Pedersen, 1986 Weiss & Troxel, 1986).

The psychological characteristics of athletes vary and are It is natural for the reaction to an injury to be different from athlete to athlete due to the diversity of characteristics of each person - athlete. Such characteristics may be levels of self-esteem or inner motivation of each.

In an injury there are many factors that may affect their response to the injury and the healing process.

The nature and extent of the injury, the type of sport, the time during the long cycle in which the injury occurred and how quickly the athlete will perceive and accept the situation, are factors that are likely to influence the athlete's reaction psychologically. , with a direct effect on his recovery and recovery with the future goal always returning to sports activities.



Psychology of the Injured Athlete: "Take care of your body it's the only place you have to live"

2.7 The four stages of the athlete's reaction against an injury

Based on the stress models described by them Martem (1977) and Passer (1982), Weiss and Troxel (1986) suggested that injured athletes similarly go through four stages reaction to injury. A simplified form of this model in relation to the athlete's reaction to the injury.

First, what happened? In this case the injuries are the stressors themselves from which the other reaction steps.

This is the first stage.

Second, what do athletes think about what happened?

This stage includes cognitive assessment of the injury by athlete and his ability to handle it.

The positive or the negative perception influences the next stage.

Athletes are more likely to feel frustrated team, coach and even their family or friends, or that Injury is serious that can end later of their careers.

At this stage, the intervention of an athlete is appropriate psychologist to make an accurate diagnosis with information from and the rehabilitation coach and the physiotherapist, with a decisive one impact on integrated rehabilitation.

The third stage deals with how athletes feel in in relation to what happened. After the cognitive perception of the injury follows the athlete's emotional reaction to the injury, who experiences feelings such as anxiety and worry (M. Wiese and R. Weiss, 1987, Pedersen 1986).

Emotions can also have an impact on athletes physically through pain associated with injury or unwanted contractions at the site of injury (Nideffer, 1980).

Sports psychologists can train athletes to control their emotions to reduce these negative side effects. Finally, what will the athletes do about what happened?

The last Stage damage injury process is the consequence of behavior in the physical and psychological issues that arise during an injury until recovery.

Regarding compliance with rehabilitation programs, the Athletes' behavior is ultimately what determines whether they will recover or not, that is, whether there will be a return to sports activities (Weiss & Troxel, 1986).

2.8 Negative emotions that athlete can feel during the rehabilitation period

Pedersen (1986) and Rotella and Heyman (1986) consider that Athletes may show signs of sadness after injury (Kubler-Ross, 1969).

The deconstruction of reality can have such effects. During this period dominant emotions are anger, denial of injury, and transitions and alternations in emotions and behaviors.

Feelings of insomnia, fatigue, crying, disturbing dreams or guilt for leaving their team are experienced to a great extent in during this period by athletes.

Also, depression is a common emotional reaction for athletes to this phase. Regardless of how the above pattern is described behavior found in injury (Jingzhen Yang, 2010) the Athletes may have different reactions to injury.

This is a personalized process. This may be due to an interaction of both their personal characteristics and occasional factors him injury.

So, sports psychologists are able to not only help in the psychological recovery of the athlete, but also to have a direct influence on the physical rehabilitation of the athlete, educating him

psychologically, to accept, to motivate himself and gain a consistency with the program rehabilitation.

2.9 Setting objectives during rehabilitation

The process of motivating the injured athlete, is considered vital to successful and smooth recovery reintegration into sporting activities (M. Wiese and R. Weiss, 1987).

Strategies that can be easily used are goal setting, relaxation and mental imagery to get rid of some of the stress and anxiety due to it traumatic experience, as well as positive internal feedback.

These techniques can be applied in all its phases injury in order to motivate athletes with their rehabilitation programs.

Goal setting

First, the athletes, the trainer, the physiotherapist, the doctor, and sports psychologists need to work together to pose realistic goals for recovery. These goals must be:

- Specific.
- Measurable.
- Written and posted in a prominent position so that the athlete can he also evaluates his progress on a regular basis interval

Finally, sports psychologists and others should talk to me athletes for their sport.

Often people avoid discuss this issue with the athletes, as if their sport is not existing now. Often, though, athletes want to talk about it their sport and include this in their conversations part of their pre-injury daily routine (Pedersen, 1986)

2.10 When athletes are ready psychologically to return to competitive sports

According to M. Wiese and R. Weiss, Psychological Rehabilitation and Physical Injury (1987), it is suggested that the athlete to allowed to return to competition when it is considered so physically and psychologically ready.

Professionals in the field sports psychology it will be desirable to ascertain the psychological Athletes 'readiness to judge an athlete' s readiness for return to competitive conditions.

Before returning to the competition, the athlete must have a sense of confidence and confidence in his success recovery from injury.

Upon his return he is likely to be put to the athlete by asks himself questions about whether he can meet the same level before injury or if you will re-injured (Jane Crossman, 1997).

These questions need to be answered by the whole team who undertook the reintegration of the athlete, by the coach, the coach, physiotherapist but also by the sports psychologist, providing information to the athlete about his athleticism.

An important point here is to avoid repeating it injury cycle, allowing early return to competitive conditions of athletes who have completed successfully the recovery program successfully in smaller time than expected but continue to have high levels of anxiety and fear about their injury, (Robert H. Brophy, et al, 2012).

2.11 Emotions of the injured athlete and counseling techniques

It is often reported that some athletes experience severe depression immediately after an injury (Smith & Milliner, 1994). In several studies, athletes often describe the first phase of recovery

as a period of anger, confusion, depression, fear and frustration (Bianco, Malo, & Orlick, 1999; Gordon, Potter, & Hamer, 2001; Johnston & Carroll, 1998; Sparkes, 1998; Udry, Gould, Bridges, & Beck, 1997).

Athletes also report that as well the recovery is evolving, the negative emotions associated with the dysfunction due Injuries tend to be depression and frustration.

Reports of depression and frustration are also common even when recovery is nearing its end and return to sports (Brewer, 1994).

In addition, athletes have reported that the fear of re-injury is a feeling that dominates as they return to active action.

So, what is required in the recovery of injuries is how the injured athlete will be able to maintain his commitment to the program that suggests the team of experts, i.e. to be consistent and to follow the rules imposed by his treatment program.

For these reasons, rehabilitation specialists (physiotherapists, rehabilitation coaches and athlete coaches) believe that counseling and some techniques should be part of their own vocational training (Kolt, 2001).

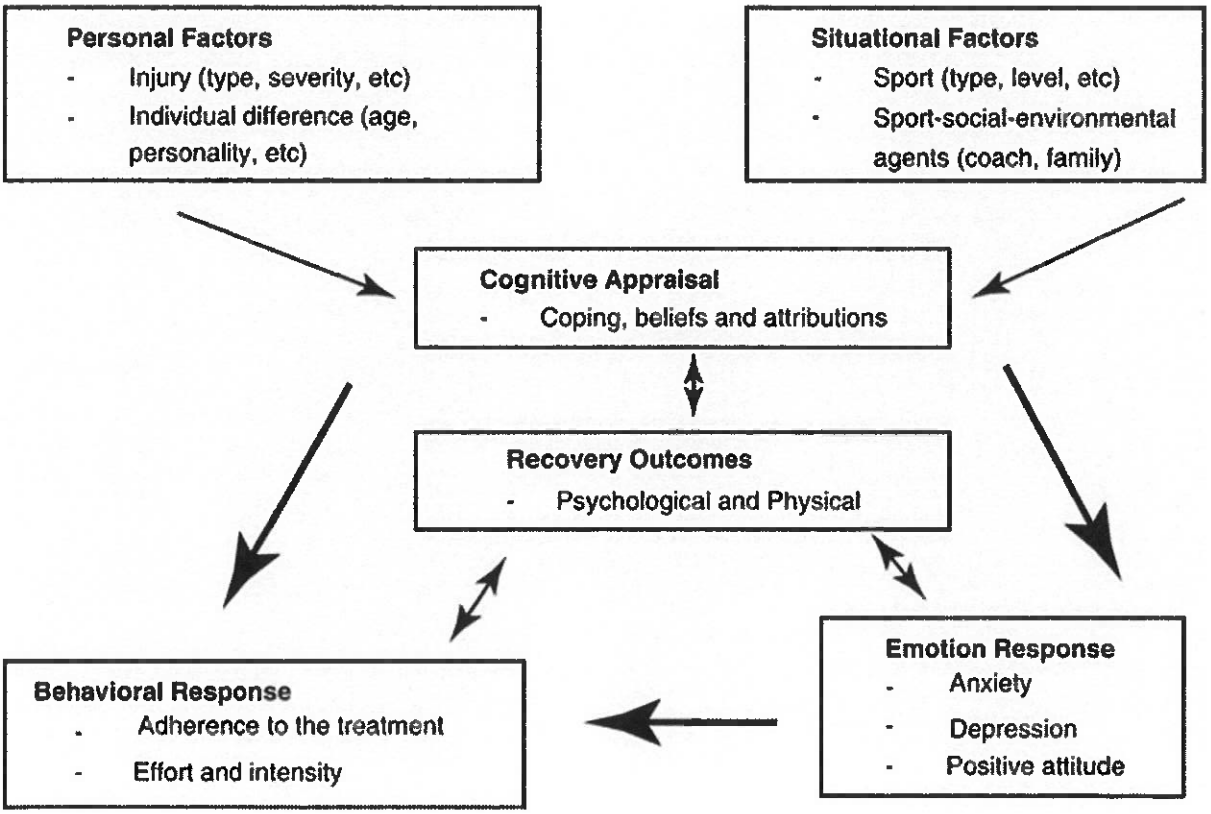
More in particular, they believe that skills such as those listed below are important to improving the athlete's commitment to the program that follows for his rehabilitation and wish to develop them as part of their education:

The technique of setting goals (Theodorakis, Malliou, Papaioannou, & Beneka, 1996), motivation techniques, mental imagery, positive self-dialogue (Beneka, Malliou, Theodorakis, Antoniou, & Godolias, 1998), effective skills communication and counseling, attention control and stress management, trust, Concentration and attention, depression reduction, pain management, relaxation and delivery social support (Brewer, Jeffers, Petitpas, & Van Raalte,

1994; Carroll, 1994; Fisher, 1990; Gordon, Potter, & Hamer, 2001; Ievleva & Orlick, 1991; Lamott & Petlichkoff, 1990; Lamott et al., 1989; Larson, Starkey, & Zaichkowsky, 1996; Wiese, Weiss, & Yukelson, 1991).

In addition, these techniques are considered could improve the interaction between the injured athlete and the staff of restoration (Bassett & Petrie, 1999; Chung & Gould, 2001; DePalma & DePalma, 1989; Green, 1992; Potter & Grove, 1999; Richardson & Latuda, 1995).

These techniques can be applied to during rehabilitation to help athletes cope with pain and stress (Theodorakis et al., 1998), negative and extreme thoughts and help motivate them and compliance with the rules of rehabilitation (Theodorakis et al., 1998; Theodorakis et al., 1996),



Cognitive appraisal and psychological response to the sport injury

2.12 Rehabilitation consulting

''The whistle blows, an athlete is lying on the ground, coaches, players and spectators with

they are anxiously looking to see what happened, while the medical team rushes to the field towards the player''.

This can be the beginning of a psychological upheaval for the athlete and the people of the immediate environment.

When an athlete is injured, the attention of coaches, rehabilitation specialists, teammates, doctors, parents and even fans are at the forefront of injury.

"How serious is the injury?" "Will he need surgery?"

These are the questions are followed by others such as "how long will he be out of active action?" and "who will replace the athlete in the position he plays? "

When an athlete is injured, his thoughts and feelings are often overlooked or not they are given the necessary interest.

These thoughts and feelings reflect his experiences athlete from previous injuries his teammates– and the way he o injury may change the future.

They cause psychological pain, which sometimes is more intense from physical pain and lasts longer. The experts, trying to help the athlete to overcome problems on an emotional level, he is often told phrases such as "you will be fine" or "Hold on".

Unfortunately, however, such expressions and non-specific behaviors are not possible to effectively address the psychological challenges that the athlete accepts because of his injury.

This means that the consequences of an injury are not only physical but also psychological, and in fact the latter can have a significant effect on the behavior of the athlete and on his future racing career (Brewer, 1994). Rehabilitation experts have also reported often that the injured athlete needs specific psychological interventions and techniques counseling in order to overcome and manage emotions and behaviors experienced after an injury (Beneka, Malliou, Theodorakis, Antoniou, & Godolias, 1998; Colt, 2001; Theodorakis, Malliou, Papaioannou, & Beneka, 1996).

If one understands and properly apply these techniques, they can prove to be important tools for effective restoration.

In addition, for many injured, the physical injury and its treatment can be particularly stressful situations.

For athletes who have achieved a significant level of self-esteem, personal motivation and achievement in their sport, injury and all that entails can be emotionally devastating.

These techniques can also help to improve the recovery process as well as to "push" the athletes to redefine their athletic identity.

When injured athletes respect and truly trust their therapist, they build it their confidence throughout the recovery and have a slow but steady pace return to their racing performance.

Well-known international footballer Didier Drogba told in an interview with the scientific journal Sports Medicine that "... one should know that injuries is part of the game as is the goal you score. Football is a sport with a lot of contact and a lot of injuries ".

Elsewhere in the same interview the world-famous athlete states that "... every athlete should try to build the right relationship with their doctor and the rehabilitation team ".

Specifically, as he characteristically said, wanting to emphasize importance of this relationship, "sometimes you need to go to the rehabilitation area even when you are healthy and in good shape, to say good morning to everyone. Sometimes, in fact me, i personally still go when i am not feeling well and i just want to talk to them "(Bambrough, 2014).

Rehabilitation coaches and physiotherapists have an advantage to establish relationships of trust and psychological care.

This advantage has to deals with the power of "touch-contact", i.e. the physical contact that is often necessary between therapist and athlete.

It is not just an integral and acceptable part of physical therapy in between specialist and athlete, but also a powerful communication tool (MacWhannell, 1992).

Some athletes may feel uncomfortable with the "touch" of their therapist, but the majority of them release emotions and relaxes (Nathan, 1999).

Therefore, athletes are more likely to be open to them their physiotherapists and rehabilitation coaches, rather than other specialists such as doctor.

So, there is a need for experts to integrate one into rehabilitation training "Periodic" plan to make it easier for them to identify and apply techniques mental exercise alongside the physical rehabilitation plan (Crossman, 2001).

2.13 Progress recording and goal technique

Another way to help athletes cope with pain is to tolerate it to record their progress.

It is very crucial for athletes to understand their improvement.

Second, they should be constantly reminded that every effort-repetition they make in each Their exercise leads them closer and closer to recovery (Fisher et al., 1993).

As the athletes look at her their improvement, they can set a goal for their next endeavor.

In recent years, several training strategies have been identified as ways to support of athletes in various phases of their personal development and evolution.

In addition to rehabilitation, the goal setting technique plays an important role. Indeed, it has been proven that goal technique not only affects athletes' performance but has also been linked to positive changes in serious psychological conditions such as stress, self-confidence, motivation and treatment of injury. Lock, Shaw, Saari & Latham (1981) defined "the goal achieving a certain skill limit in a skill, usually in a specific time frame limit".

2.14 Relaxation

While trying to achieve a normal range, the athlete is often afraid of re-injury as well the physiotherapist can stretch the injured area in such a way as to remind the patient athlete the mechanism of his injury.

Because he is often afraid of being injured again as he does an exercise - even if it is suggested by his therapist - the athlete does not relax, resulting in shows increased muscle tension - due to stress - which in turn worsens the pain (Singer & Johnson, 1987).

To deal with this problem, the athlete must learn to apply a technique relaxation, focusing particularly on the muscles that occupy it.

Applying this technique o Athlete can really see and feel the gain in the agility he has after exercise.

Many studies have shown that stress management techniques in rehabilitation or prevention injuries have a positive effect.

More specifically, these management programs have proven to be effective in reducing negative thoughts and increasing performance as well in increasing the level of pain tolerance (Pen & Fisher, 1994).

This experience brings a sense of accomplishment and facilitates reintegration (Ray & Wiese Bjornstal, 1999).

In addition, relaxation techniques have been shown to cause normal changes that demonstrate its effectiveness, such as reducing heart rate, its respiratory rate and blood pressure (Hardy, 1992; Lichstein, 1988; Singer & Johnson, 1987).

Relaxation exercise has also been reported to help the injured athlete overcome pain and affects the sympathetic nervous system helping healing (Wiese & Weiss, 1987).

Relaxation training involves teaching athletes to voluntarily decrease the amount of tension in their muscles, calm their minds, and decrease autonomic responses such as their heart rate and blood pressure.

In one common method known as progressive relaxation training, athletes are instructed to alternately tense and relax various muscle groups in an attempt to discern the difference between tension and relaxation, and, ultimately, gain the capability of relaxing their muscles at will.

In another common form of relaxation training, athletes are asked to engage in various breathing exercises that induce a relaxation response through the taking of deep, diaphragmatic breaths. In autogenic training, a third relaxation training method, athletes learn to relax their

bodies by giving themselves suggestions regarding their breathing rate and the temperature as well as heaviness of various parts of the body.

With sufficient practice, athletes can use self-instructions such as "my left arm is warm" and "my arms and legs are heavy" to achieve a state of relaxation on a consistent basis.

2.15 Mental imagery

Another technique that may prove useful in treating pain is the use of images healing, associated with successful natural results. Mental imagery is defined by Denis (Denis, 1985) as a psychological energy that "brings out" the physical characteristics of an object, person or space which are either permanently or temporarily absent from one's perception.

The images can be either passive reproductions or active and dynamic ones (Paivio, 1990). The Athlete should have received a clear description of what happened internally as a result injury and the subsequent healing process.

The therapist can help the athlete to create mental images that can be used in the imaging process (Heil,1993).

Two types of mental exercise are reported by Walsh (Walsh, 2005):

(a) Pain management (pain-management imagery), in which the athlete experiences the pain of the injury, and

b) The "Rehabilitation-process imagery" in which the athlete imagines the completion of rehabilitation exercises, obsession with the rehabilitation program.

Athletes often envision themselves achieving great achievements in their sport.

In the event of injury, rehabilitation specialists can encourage him athlete to utilize this skill and apply it in different phases of rehabilitation until complete reintegration (e.g. during a treatment, to achieve the predetermined targets).

Using mental imagery can return a sense of control to injured athlete who had lost her.

This means that at this stage the athlete cannot perform an activity with his physical powers he feels more capable when he envisions it successful attempt to perform a skill by activating mental reserves of behavior, therefore and more effort.

Because he lacks that at this stage: the driving force for more effort, not negative behaviors that lead him to resign (Crossman, 2001).

Mental imaging, when applied as an adjunct to therapy, allows the athlete to adopt a culture of positive behavior, stress management and maintaining one's beliefs about process of restoration (Granito, Hogan, & Varnum, 1995).

When mental imagery is included in rehabilitation sessions, self-confidence is improved, and a sense of control is established in the injured member.

Several of the mental exercises can be performed during treatments such as a dinosaur, a stationary bike, an ultrasound or electro muscular application stimulation (Granito, Hogan, & Varnum, 1995) in order to better deal with the internal and external pain, facilitating the ascension process and maintaining the rest of the physical skills from the consequences of immobility (Richardson & Latuda, 1995).

The technique of mental practice is used as an alternative method in the process rehabilitation. There are usually four types of mental exercises:

- The athlete imagines and feels that he is doing his treatment (healing imagery).
- The athlete imagines that he is achieving his goals regarding rehabilitation (recovery imagery).
- The athlete imagines that the physiotherapy treatment he does promotes effectively and fast recovery (treatment imagery).
- The athlete mentally performs the exercises that are related to the actual execution (performance imagery).

Imagery is a versatile technique in which athletes are guided to create mental images in which multiple senses are engaged.

Sometimes paired with relaxation training, imagery can be used for assisting in the acquisition of a new physical or mental skill, rehearsing a previously acquired physical or mental skill, learning a new strategy, and many other functions in sport psychology.

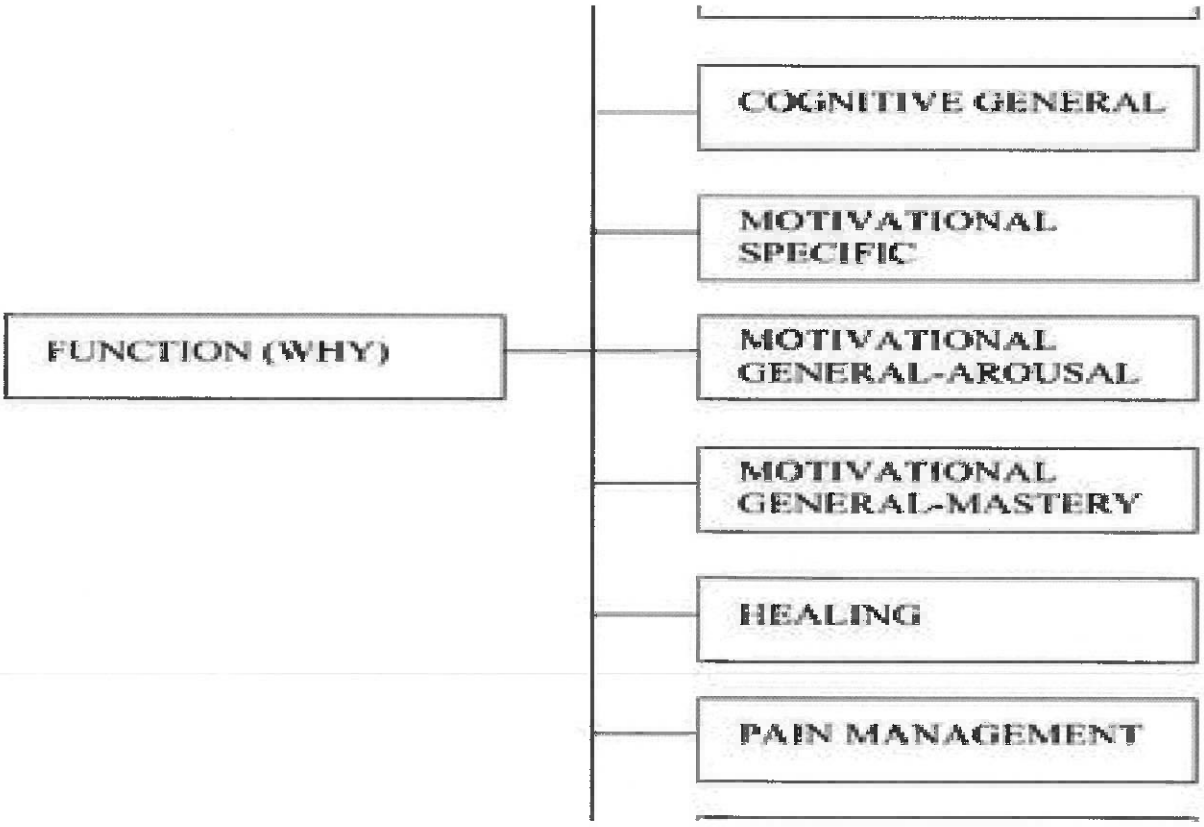
The content of the images varies according to the reason the technique is being used.

For example, when imagery is used to foster the development of a physical skill such as a golf swing, sport psychologists are likely to instruct athletes to use visual, auditory, kinesthetic, and other sorts of images that correspond to swinging a golf club.

Some imagery instructions involve adopting an internal perspective, in which the athletes are asked to imagine particular settings or situations as experienced through their own senses.

Viewing a scene through one's own eyes, as cyclists might view the roadway ahead of them, would be an example of internal imagery.

Imagery from an external perspective, in contrast, involves athletes viewing themselves performing specific actions as other people would see them, as if they had been filmed and were watching themselves on a video monitor.



The functions served by injured athletes' imagery.

2.16 Goal setting

In goal setting, it is typical for athletes and sport psychologists (and sometimes coaches) to collaborate in establishing a set of behavioral targets that the athletes then attempt to achieve.

Generally, sport psychologists encourage athletes to set goals that correspond to specific, measurable behaviors (such as practicing a sport skill a certain number of times on a given day).

These are phrased in positive terms (as behaviors to achieve rather than behaviors avoid) and are challenging yet realistic.

Although athletes readily set goals referring to sport outcomes (such as victories competitions), outcomes are often beyond their control.

Athletes may be able to control their own fitness, preparation, and effort in competition, but they often cannot control the opposition and environmental conditions that can have a large impact.

Consequently, goal setting principles commonly refer to the need to set goals for both individually controllable processes as well as sport outcomes, under which athletes have less complete control but which may have greater inspirational value.

To maximize the impact of goal setting, sport psychologists generally recommend that athletes record their goals in written form and lay them out on a timetable, from short term to long term.

By charting their progress toward goal achievement on a regular basis, athletes can readily evaluate the effectiveness of the goal setting intervention and determine whether they need to adjust their goals - upward or downward - to ensure that the goals are both challenging and attainable.

Further, by learning to identify potential barriers to goal attainment and develop strategies to get around such roadblocks, athletes can arm themselves with a means of persisting and continuing to pursue their important aspirations in the face of adversity.

Goal setting in collaboration with the therapist should be done each time before it is started exercise session.

This technique helps both the athlete and the therapist to focus on each a separate step in the recovery process (Gordon, Potter, & Hamer, 2001).

Short-term (e.g. weekly), medium-term (e.g. monthly) and long-term (e.g. 6-12 months) objectives will need to be determined depending on the severity of the injury and possibly the duration of recovery.

For example, "today I did 3 sets of 15 reps with a weight of 10 kg. Tomorrow I will do 4 sets of 20 repetitions ".

When the athlete is ready to achieve more sets and more repetitions with the same weight, can set a target for the new weight.

In particular, it turned out that the goal setting team also improved efficiency and performance, with increased satisfaction and reduced stress, while also demonstrating change in the behavior of athletes due to the application of the technique.

The authors concluded that Injured athletes who used the technique on targets behaved in a manner similar to that of healthy athletes, proving that this technique is suitable for increasing effort and build their self-confidence (Theodorakis et al., 1997; Theodorakis et al., 1996).

There are four primary reasons why goals work:

1. Goals direct attention to important elements of the skill being performed. Research with athletes has confirmed that the primary reason performers set goals is to provide direction and focus to their actions.

2. Goals mobilize performer efforts. Athletes often get discouraged in their attempts to reach certain levels of performance due to obstacles such as injury. Setting a series of short-term goals, for example, helps athletes put forth effort to reach these goals.

3. Goals prolong performer's persistence. Following up on the increased effort noted earlier, goals help performers persist over time as they strive to reach their goals. For example, a person who wants to lose 20 kg might be easily discouraged, as this seems like a lot of weight (and it

is) and a very daunting task. But if one can break that down to losing 1 kg a week, it seems more manageable, and motivation and persistence can remain high for a long period of time.

4. Goals foster the development of new learning strategies. For example, if a basketball player's goal is to increase her free-throw percentage from 70% to 80%, she might refi ne her pre-shot routine, change the biomechanics of her shot, or practice more shots even when she feels tired.

These new learning strategies can serve as action plans to help achieve goals.

Although many principles can be gleaned from both the laboratory and the field studies that have been conducted, there are a couple of useful acronyms that incorporate many of these concepts and serve as goal setting guidelines for athletes and coaches.

The first is known as SMARTS.

In essence, goals should be:

(a) Specific,

(b) Measurable,

(c) Action-oriented,

(d) Realistic,

(e) Timely and

(f) Self-determined.

The second acronym is known as INSPIRED.

That is, goals should be:

(a) Internalized,

(b) Nurturing,

(c) Specific,

(d) Planned,

(e) In your control,

(f) Reviewed regularly,

(g) Energizing and

(h) Documented.

Many of the same principles are seen in both of these acronyms, although there are some differences because all goal setting principles cannot be captured in one simple acronym.

With respect to the specific city and measurability of goals in the SMARTS acronym, goals that are general and difficult to measure (e.g., "I just want to improve my game" or "I want to do my best") do not produce as much performance improvement as goals that are specific and measurable (e.g., "I want to improve my first serve percentage in matches from 55% to 60%"). Providing a specific goal allows athletes to receive feedback on how they are doing in relation to the goal.

If, for example, a tennis player's first serve percentage goes down from 55% to 52%, she knows that she is not moving toward her goal.

This feedback helps motivation and persistence in providing consistent effort to reach the goal. In addition, it allows the athlete to reevaluate her goal and make it easier (e.g., 57%) or more difficult (e.g., 63%), depending on the feedback that is received.

A critical point is having an action plan to reach one's goal.

Too often athletes set outcome goals such as winning a tournament or conference championship, but there is no real plan regarding what to do to reach this goal.

For example, if a runner's goal is to win the 1500 m race in competition a month from now (an outcome goal), what would the runner need to do to reach this goal?

A better goal (because it would be under the runner's control) would be to reduce one's 1500 m time from 4:45 to 4:40 in the next race.

However, it would still be important to set action-oriented goals to help reach this goal.

For example, the runner might set goals in terms of the number of 400 m runs performed in practice, the number of times certain lifts are done in the weight room, the kinds of foods eaten, and so forth.

These goals would be very specific but accomplishing them should help the runner reach the goal of running a 4:40 in the next 1500 m race. 10 Chapter 2 Of course, the goal should be realistic - not too easy and not too difficult.

In essence, the goal should be difficult to achieve, but attainable with consistent effort.

But the "R" could also stand for reevaluating goals and possibly changing them if they prove to be too easy or too difficult. Goals are a starting place, not an ending place.

For example, if a baseball player set a goal to bat .300 and at midseason, he was hitting .220, then it would seem appropriate to reevaluate the goal and reset it.

Goals should be timely in that there should be a time or date by which they should be accomplished.

In the goal of running 4:40 for the 1500 m race, there is obviously a time frame because the race is coming up in 1 month.

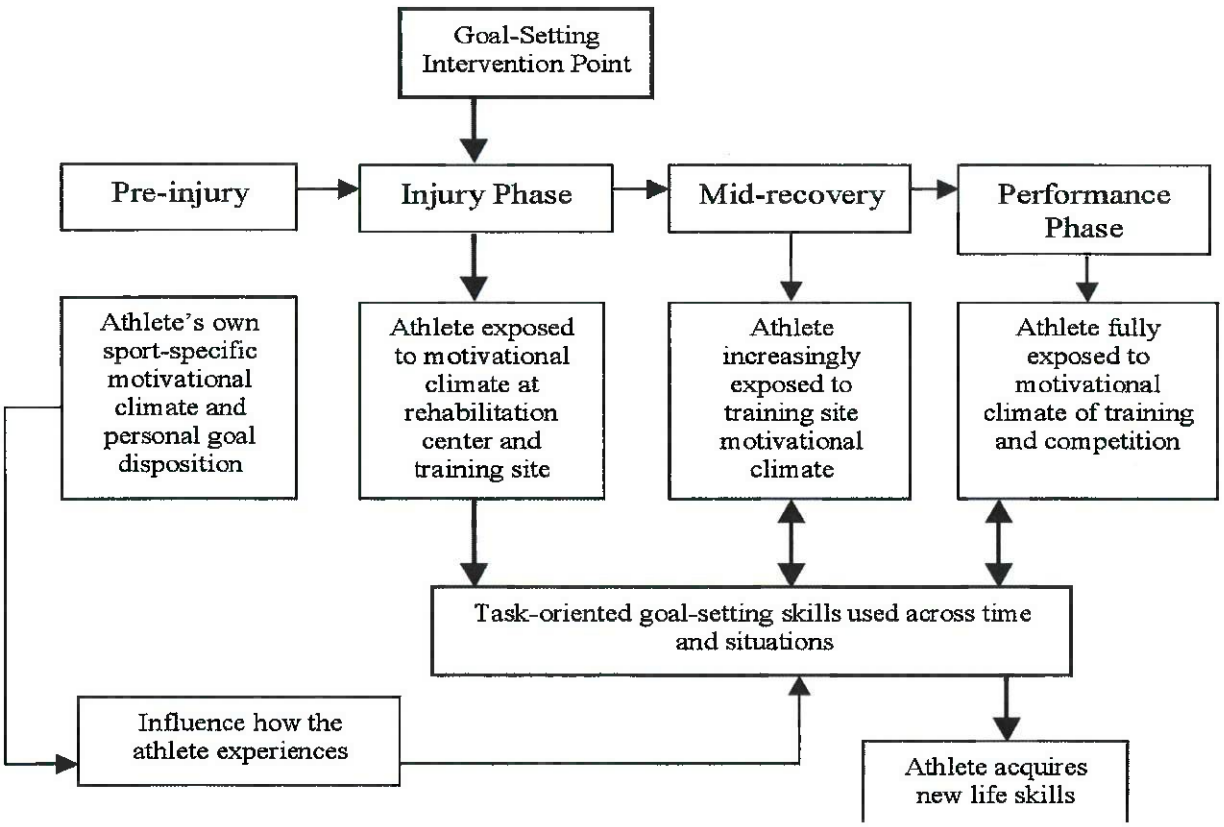
Similarly, if one's goal was to lose 20 kg, a time frame should be set and there should even be some short-term goals with a time frame (e.g., losing 5 kg a month or 1 kg a week).

This would add to the specificity of the goal as well as provide feedbacks on how one is doing in trying to reach the goal.

Finally, for maximum commitment, goals should be self-determined.

That is, goals should be set by the athlete (not by the coach, parent, or teammate), although certainly input could be received from these individuals, especially if they have expertise in the area.

But the more that goals can be determined and set by the athletes, the more committed they will be and the more persistence they will display in attempting to achieve these goals.



Model of sport injury rehabilitation: Integration of goal-disposition, motivational climate, and a task-oriented goal-setting intervention strategy (Gilbourne & Taylor, 1998).

2.17 Positive self-dialogue

Positive self-dialogue is used to motivate the athlete to work on his recovery with confidence and prolonged effort (Crossman, 2001).

Positive expressions like "I feel more strong day by day "should read them several times a day or especially when the Athlete feels that he needs a reminder to think positively.

Bunker, Williams and Zinsser (1998) suggest positive self-dialogue as one of the most important "secrets" for mind control.

The positive self-dialogue helps and directs the athlete to keep his mind in the present, in it that is, who is now doing the restoration.

It also helps the injured athlete to stop it his mind from thinking negatively repeating old mistakes and not worrying about what will happen in the future.

Self-talk, which refers to one's internal dialog with oneself, can be used to influence how athletes think, feel, and behave.

For example, negative self-talk, which includes pessimistic, critical statements about oneself and one's prospects for the future, is considered especially detrimental to sport outcomes.

Consequently, sport psychologists generally encourage athletes to use self-talk that is positive, which can instill a sense of optimism, or instructional, which directs athletes toward the task at hand.

Implementation of a self-talk training program is often preceded by an assessment of athletes' typical self-talk patterns - both what they say to themselves and the circumstances under which

they say it - and identify cation of any irrational or unusual beliefs or expectations that might underlie the athletes' counterproductive thoughts.

2.18 Psychological collapse

Psychological collapse has been characterized by many athletes as Greg Norman and Jana Novotna, as one of her most painful experiences their athletic careers.

These athletes were characterized by the press as "prone to psychological collapse" ("chokers") because they presented dramatic drop in their performance, at a time when everything seemed to be gaining one important tournament, while the end result was to lose.

The largest number of athletes, professional and non-professional, has faced psychological collapse at some point in his career (Landers & Boutcher, 1998).

Several researchers have suggested definitions for psychological collapse, but still everyone has limitations (Daniel, 1981, Anshel, 1997; Baumeister, 1984; Nideffer, 1992; Lewis & Linder, 1997; Wang, 2002; Mesagno, 2006). Daniel (1981) defined psychological collapse as "the inability of the athlete to perform according to previous performance and to achieves similar results or his inability to put into practice what he has train".

Although this definition is satisfactory, there are several reasons that can push an athlete not to perform as well as well as in the past, such as reduced concentration or an injury.

Yet, a limitation of this definition is the absence of its effect performance stress.

One of the most accepted definitions is that as a psychological collapse means "the decrease in efficiency due to the increased pressure that comes from a combination of factors that increase the importance of success " (Baumeister, 1984, p. 610).

The advantage of this definition is that includes stress but has two major drawbacks.

First, the quantity of performance reduction understood as psychological collapse is not included in the definition that is, a basketball athlete collapses psychologically when the its performance shows a reduction of 60% or 80%.

Second, there is no differentiation in terms of the level of athletes and how this affects the phenomenon.

Some researchers claim that psychological collapse occurs in athletes of all of levels (Baumeister & Showers, 1986; Beilock et al., 2002), while others claim that the phenomenon occurs only in high level athletes (Masters, 1992, Wang, 2002).

Baumeister and Showers (1986) argued that as long as increased performance is a goal for the athlete then there is a chance the athlete to experience psychological collapse regardless of level.

By psychological collapse Nideffer (1992) means "displacement of the athlete's attention to elements unrelated to the activity, resulting in inability to collect useful information".

The problem with this definition is that it does not involve stress as well as reduced performance.

While, Nideffer (1992) suggests that psychological collapse is a result shifting attention to activity-irrelevant elements, Lewis and Linder (1997) argue the exact opposite, that the phenomenon is a result excessive concentration of the athlete on activity-related data.

2.19 Stress

Baumeister (1984), Masters (1992) and Nideffer (1992) agree that Anxiety is a human condition that includes cognitive, behavioral and physiological changes and is directly related to psychological collapse.

In 1966 Spielberger separated state anxiety from characteristic stress.

State anxiety refers to "subjectively, consciously perceived feelings of anxiety and tension" while the characteristic anxiety is "the predisposition of the person to feel stress in various situations which he perceives as threatening when in fact he is not".

Sports psychology focuses more on the study of stress situation.

Many researchers agree that stress is a multidimensional phenomenon (Davidson & Schwartz, 1976; Liebert & Morris, 1967).

His Multidimensional Theory Anxiety (Multidimensional Anxiety Theory, Burton, 1988, Martens, Burton, Vealey, Bump, & Smith, 1990) suggests that stress consists of mental (cognitive stress) and physiological factors (physical stress). Cognitive stress characterized by fear of failure and negative expectations for performance, while physical stress is characterized by physiological changes that occur in a person's body when he is stressed.

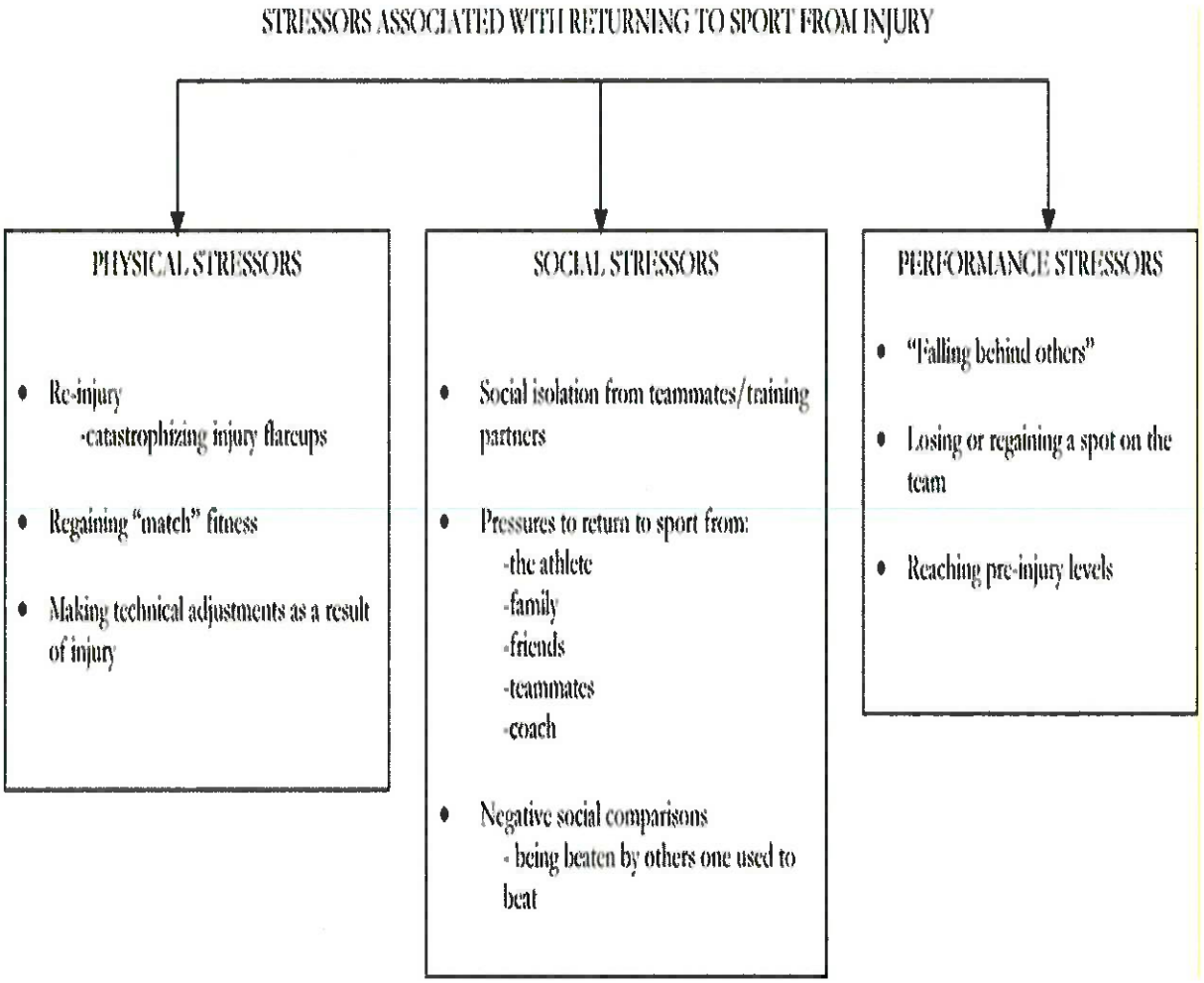
The psychological collapse is associated with cognitive stress because as the chance of success decreases so does anxiety increases, resulting in distraction from the activity and to show a decrease in yield (Wine, 1971).

On the other hand, the physical Anxiety shifts the athlete's attention to physiological changes, which occur, resulting in a reduction in yield again.

The relationship between stress and perceived control requires further study because according to Carver and Scheier (1988) perceived control, as far as concerns dealing with and explaining how to deal with stress, is a very important factor.

Therefore, stress is valued as a positive element by an athlete usually results in an increase in his performance.

On the other hand, an athlete who perceives stress as a negative element then increases the chances of reduced performance (Carver & Scheier, 1988, Heaton & Sigall, 1991)



Coach perceptions of the stressors associated with returning to sport from injury.

2.20 Ways to deal with stress

The term stress management is defined as "the effort made by athlete in order to reduce stress levels and limit all non-pleasant emotions caused by this, such as increased heart rate, the sweating and negative thoughts"(Stone & Neale, 1984, p.).

According to Endler and Parker (1990) as dealing with stress means "his reaction individual in environmental and psychological requirements especially in situations that promote stress and pressure".

The treatment depends on condition in which the athlete is, as well as from various personal experiences (Carver, Scheier, & Weintraub, 1989; Parkes, 1986) and is not an automated process, but is presented as the individual's attempt to handle a stressful event (Lazarus & Folkman, 1984).

Although the Stress management involves a focused effort to cope with the various requirements of a race does not mean that the result will always be positive (Compas, 1987), that is, the ways stress management does not guarantee success in a race.

As successful treatment is considered to be the recovery of any lost composure and restoring physical stress to ideal levels in order for the athlete to perform at high levels (Singer, 1988).

Psychological collapse is usually the result of a wrong choice of how to deal with stress (Mesagno, 2006).

Research shows that athletes use a variety of ways stress management in the various stimuli that cause it during of a match, depending on the type and intensity of the stimulus (Folkman, 1992).

Folkman (1984, 1988, 1992) argues that the main approaches of stress is the approach and avoidance.

According to Anshel (1996), when o athlete tries to understand the origin of stress, uses the way approach, while when not trying to solve the problem presented, then uses the way of avoidance, which allows him to maintain them necessary levels of attention for the activity.

Several researchers (Miller, 1990, Mullen & Suls, 1982; Roth & Cohen, 1986) argue that the way to avoid reduces stress, in situations that are difficult to control, in relation to approach.

The treatment that the athlete will choose depends on personality and levels of self-confidence (Folkman, 1992).

So do athletes who choose to use the approach are usually people with high self-confidence, compared to those who choose the way of avoidance (Folkman, 1988).

Athletes who use the approach try to solve and overcome performance problems while those who choose to avoid simply ignore the problem in order to meet the demands of the struggle (Folkman, 1988).

They are interesting the findings of Grove and Heard (1977) who, while arguing that individuals with increased confidence use the approach as a way of dealing with it stress and show an increase in their performance, there is a case of use this way does not always have positive results.

Nevertheless, athletes with increased self-confidence tend to be motivated, regardless of stress levels and perform effectively (Jones, 1995).

Crocker and Graham (1995) argued that high-level athletes use the approach more effectively when focusing on their attention to the challenges and problems presented during training or competition.

Athletes who perceive the Anxiety and stress as positive elements are better able to deal with them more effectively in relation to those who view them as negative for performance there.

Athletes who are negative about stress have a significant problem controlling their emotions, resulting in wrong decisions and their gradual push towards psychological collapse (Ntoumanis & Biddle, 2000).

Typical is the example of a skating champion who She drank alcohol to reduce her pre-race stress, but something which had a negative effect on health and performance (Gould, Jackson, & Finch, 1993).

2.21 Feedback

Probably the method most often employed by coaches to motivate athletes is the use of some sort Table 2.1 Competitive performance mentality.

Helps athletes balance the self-challenge (task goals) versus the game challenge (ego goals) inherent in every competition.

After every competition, it is critical to review and appraise the self-challenge first (i.e., level of individual skills and efforts relative to personal expectations) and then review the game challenge by reflecting on the skills of the opponent and aspects that tested the athlete's resources in competition.

Creating an achievement log and answering the following questions can help athletes understand the different types of goals they should set.

Examples of questions relating to a task-oriented focus where did i how the most improvement?

When did i work the hardest?

What was the most fun aspect?

Under what conditions did i perform best?

Examples of questions relating to an ego-oriented focus when was i superior to my opponent?

When was i able to do things others weren't able to do?

What conditions led me to beat others?

12 Chapter 2 of reinforcement and feedback.

The theory behind the use of feedback is based on operant conditioning principles, that argue that our behaviors can be influenced by, and eventually controlled by, manipulating consequences.

Specifically, if the consequences for a behavior are positive, then this increases the likelihood of performing the behavior.

Conversely, if the consequences of a behavior are negative, then the likelihood of performing the behavior is reduced.

For example, if a baseball player receives positive feedback from the coach for putting forth full effort, then the athlete is more likely to try hard in the future.

However, if the player is yelled at for "slacking off" on a drill, then the athlete is less likely to "slack off" again.

Unfortunately, although this approach may generally work, things are not always so simple.

For example, some athletes perform better after negative feedback than positive feedback, sometimes athletes actually perceive a punishment as a reward, and, at times, they may be unable to repeat the reinforced behavior.

CHAPTER THREE:

III. Research Methodology

Introduction

This chapter presents the research design outlined by the researcher and focused on the approaches and methods used to collect data in order to provide answers to the research questions.

The questionnaires and interviews were discussed as the methods of collecting data in this study.

The researcher considered the ethical issues as well as reliability and validity. Data analysis was also done.

Methodology

The methodology used to prepare this research was to search several bibliographies on the internet, from various books, from personal experience of serious injury but also from many athletes who went through miserable conditions after injury.

Choice of Research Method

In the present dissertation, the research that carried out is the quality.

In qualitative research the researcher delves into the social space, he studies and tries to see things from the point of view of the investigated.

In other words, it tries to get to know the respondents as well as possible whilst that may be included in their social environment.

Qualitative research emphasizes the importance of the historical and social context for the interpretation of attribute the subjects to the behavior of others. (Kyriazi, 2011).

Purpose of my thesis

This has been partly covered in the abstract and part of the introduction.

As a basketball player for many years i had a successful career, played at top level, reached the National Team of Cyprus, but a serious knee injury - anterior cruciate ligament rupture - unfortunately ended my career.

Over time, i realized that an important element for my early retirement was the psychological part.

I was not mentally strong enough to deal with it, but i did not have anyone really familiar with the subject to help me overcome it.

So i decided, having this unfortunate personal experience, that it is a must for me to study and look for sports psychology more deeply.

The purpose of this study is to help those who read my research cope with this difficult recovery from a serious injury as a player or as a coaching staff.

It is especially of tremendous importance to realize how much ''the strong effort factor'' as well as ''the strong positive psychology factor'' are vital and needed in sports, especially after a serious injury.

CHAPTER FOUR:

IV. Results

Society, culture, technology as well as man constantly evolves and adapts to new data.

This applies to all of us.

There is growth in our lives every day.

It is important to keep up with new situations, events.

It is important in any profession; someone, in this case an athlete, is obliged to continue to enrich his knowledge and experiences. Whether this is for business purposes, either for staff.

Perceptions of the Factors Influencing a Return to Competition

Analysis of the data revealed 133 raw data themes pertaining to athlete perceptions of the psychosocial and behavioral factors influencing their ability to regain or surpass pre-injury levels.

In thinking about such factors, participants were asked to contemplate the time-period ranging from the commencement of rehabilitation until the return to competition, that is, until participants' first official game.

Raw data themes were classified into seven higher order themes grouped into four general dimensions, namely:

(1) Social support

(2) Investment in rehabilitation and training programs

(3) Coping skills and

(4) Motivation.

Social Support

Athletes described the pivotal role of a supportive network of team staff (coaches, athletic trainers and sport medicine professionals), teammates, family and friends in facilitating their return to pre-injury levels.

Such individuals were suggested to be instrumental in providing various types of social support, for example, informational (e.g., giving advice, feedback, suggestions, and information to increase athlete's awareness of the return process and reduce concerns), emotional (e.g., listening, reassuring, and demonstrating empathy) and motivational support (e.g., encouraging athletes to overcome setbacks, recognizing the missed contribution of the injured athletes).

All athletes emphasized the crucial role of physiotherapists and athletic trainers in providing informational, emotional, and motivational support.

An interesting finding was that participants commonly reiterated that such specialists took time to inform them of and elucidate potential return to competition scenarios during the rehabilitation period (e.g., the time needed for the body to be at the same functional capacity as pre-injury).

For instance, whilst interviewing an athlete, i highlighted: "If i think to my come back, i need to recognize that the physiotherapist was helpful. He pushed me to create a goal and to be more aware about my condition, actual and future".

Similarly, other athlete remarked: "I remember a few weeks before my first competition, my athletic coach had spent some time giving me information on the possible physical conditions of an athlete who comes from a long time injury and comes back to compete; it was very useful for me to create ideas and expectations about what I would have found in the court".

The emotional and motivational support received by family, partners, and friends was valuable in mitigating feelings of isolation as described by athlete , ("having around people who support you like family and friends, is really comforting and helps you to feel not alone") whilst other athlete said : " felt a total support from my family to continue my rehab, they strongly believed in me and in my efforts".

Teammates were also a source of motivational support.

Epitomizing the belief of others, an athlete stated he felt extensive support from teammates because they were looking forward to having him back on the court.

Participants also reported that teammates who had experienced similar injuries were valuable sources of emotional and informational support. As an athlete indicated: "I remember that one of my teammates was texting me all the time. He had a similar injury before those people who have had the same experience in the past can really understand you and give you important information about the return process".

Raw data themes (examples)	Higher order themes (a/c)	General Dimensions
Feedback received by coaching/medical staff Reassurances from the coaching/medical staff Encouragement from coaching/medical staff	Social support staff (10/39)	Social support
Reduced feeling of isolation thanks to family/ friends Listening support from family/friends	Social support family and friends (6/11)	
Demonstration of empathy by teammates Received information from teammates with similar injury	Social support teammates (4/6)	
Collaborative involvement in clinic-and home-based activities Commitment to rehabilitation staff suggestions Avoiding harmful activities	Investment in rehabilitation and training programs (10/40)	Investment in rehabilitation and training programs
Being patient Being devoted	Coping resources (8/12)	Coping skills
Having other interests outside of sport context Planning	Coping strategies (6/10)	
Love for competition Regaining pre-injury physical condition	Motivation (9/15)	Motivation

Note:a = number of athletes citing a raw data theme; c = number of raw data themes.

Professional Basketball Players Perceptions of Psychosocial and Behavioral Factors Influencing a Return to Pre-injury Levels

Investment in Rehabilitation and Training Programs

Participants described the importance of being dedicated to their rehabilitation and subsequent training by actively participating in rehabilitation and training sessions, completing clinic-and homebased activities, listening to rehabilitation staff suggestions and avoiding potentially harmful activities.

For instance, an athlete suggested that: "working hard, following the recommendations from healthcare providers and avoiding the tendency of be overly adherent to a rehab regime, are fundamental to feel that your body is ready again to compete".

Similarly, other athlete commented that: "being dedicated, not taking anything for granted, not doing less but exactly what practitioners have suggested to you, even when you are at home; this is the best way to have a successful return".

All interviewed athletes believed that their diligent investment in rehabilitation and training programs was fundamental in achieving functional body perceptions (i.e., high physical performance capabilities), increasing confidence in the injured body part, and promoting personal involvement in planning their return.

Coping Skills

Basketballers indicated that personal coping resources (i.e., intraindividual characteristics) and well-developed coping strategies (i.e., intentional tactics employed to address injury stressors) during the rehabilitation were key factors enabling a return to pre-injury levels.

Coping skills were identified as crucial to effectively complete rehabilitation and training programs, to attenuate stressful situations, and to regulate emotions associated with the typical "ups and downs" of the rehabilitation period.

Athletes emphasized the salience of particular coping resources or trait-like characteristics, such as optimism, patience, determination and devotion.

For instance, a basketball player commented: "If you are the kind of person with an optimistic outlook, as i see myself, it helps you experience greater focus and less concern about the rehabilitation process".

Moreover, participants reported, active acceptance, rational thinking, problem-solving, having other interests, planning and setting effective goals as useful active coping strategies.

As a player remarked: "In my opinion it is important and useful to have a life outside of basketball. Having other interests, hobbies, and friends helped me to not be focused on the injury, especially when I was feeling down".

https://summitperformancepsych.com/mental-health-after-injury/

Motivation

Motivation is one of the most important aspects for obtaining peak performance.

However, many coaches and athletes are not aware of the research on specific strategies and techniques to enhance motivation.

Motivating the injured athlete to adhere to rehabilitation programs is critical.

Several techniques can increase motivation.

One effective way is through goal setting.

Here, athletes can be directed to channel their energies toward achievement of rehabilitation objectives, and a degree of control over their rehabilitation can be instilled.

Participants / athletes considered motivation an essential ingredient in regaining physical performance standards and returning to preinjury levels.

In particular, all participants believed that their love of the competition and the motivation to regain previous physical conditions helped energize their return to sport and pushed them Frontiers.

Return to Pre-injury levels in Basketballers to give: "100% effort" in recovering from their injury.

Motivation was also deemed to be fundamental in managing the challenges, setbacks and difficulties associated with the rehabilitation timeframe.

The following statements epitomized this idea: "I was motivated to train hard, to come back as soon as possible at a high standard of physical conditioning" and "my motivation had pushed me to keep going, especially when i felt the boredom of the rehabilitation exercises or the difficulty of the training program" .

Confidence

In reflecting on their experiences during their first official league match, athletes articulated the importance of two confidence dimensions, namely confidence in the effectiveness of their practitioner/rehabilitation program, and confidence in their personal performance capabilities.

Virtually all participants indicated that a key reason why they felt confident upon their initial return to competition was because they believed in the abilities of their rehabilitation practitioners and in the effectiveness of the work completed during their rehabilitation programs.

Comments by athletes and i nicely captured the confidence participants felt in their rehabilitation practitioners and programs: "I was certain of the work of the physiotherapists and the trainers, satisfied of the physical outcome of rehabilitation"), and "the months before my first competition i worked hard with very strong expert professionals, i believed in them, totally, and in our work. . . it was a positive thought when i was on the bench ready for my first match after the injury" .

Even though participants expressed confidence in the abilities of their practitioners and the effectiveness of their recovery regimens, they nonetheless indicated a lack of belief in their performance capabilities and in their ability to execute skills.

For instance, an athlete commented: "my body was ok, ready...but i felt i was not able to do what i was usually do. Definitely, it was my first feeling; not being able to do the things that i used to do was the most hurtful experience".

Echoing this sentiment, athlete remarked: "i played and i realized that i was not as good as i thought i should be; my confidence was very low and i remember the doubts i had during the first game on my ability to play".

Emotions

The inability to execute tasks one had previously performed with relative ease, typically resulted in feelings of frustration and dissatisfaction.

As an athlete articulated, "sometimes i got frustrated because i was trying to do the things i used to do before [the injury], but i wasn't able to".

Somewhat surprisingly, the intensity of athletes' negative affect was not extremely high.

Interview comments revealed that some rehabilitation specialists had prepared returning basketballers for the fact that their performance might not be as high as pre-injury levels upon their immediate return.

Epitomizing this sentiment, an athlete commented: "of course it was frustrating the feeling of not being able to do what you want and should be able to do, but I had been prepared by the professionals on this possibility".

A range of other negative emotions were expressed in relation to participants' return to competitive play.

In particular fear and concerns regarding one's ability to attain or surpass preinjury performance levels, to execute sport-specific skills, and to appear fit and decisive in one's on-court decision making were repeatedly mentioned.

Speaking to his concern about reaching or surpassing pre-injury levels, athlete suggested: "there was fear too. In setting your foot again on the...surely there was a bit of fear, fear about not being the athlete i was before [the injury]".

Interestingly, the fear of sustaining a new injury was only identified by two participants, perhaps an indication of the quality of the work of treatment team members.

Despite a predominance of negative emotions, participants also reported feelings of happiness and "joy (associated with) being back on the court" (an athlete stated) and suggested that positive emotions were a "natural reaction for once again doing something that you love (to do) and have waited for a long time".

Characterizing the thoughts of others, an athlete stated: "I was happy because i wanted to return to play and i could play again . . . you know, when you don't step on the court for a long time, you are looking forward to going back on it."

The psychological toll of sport injury is perhaps most evident in the realm of emotions.

Among the more common emotions experienced by athletes with injuries are anger, confusion, depression, fear, and frustration.

In general, negative emotions tend to increase immediately following injury and decrease over the first month post-injury, presumably as athletes adjust to their conditions and recover health and function.

Emotional disturbance may persist, however, when the athletes have severe injuries or encounter obstacles in the recovery progress.

In approximately 5–24% of athletes with injuries, the levels of emotional disturbance are clinically meaningful and may warrant the attention of a mental health practitioner.

Unfortunately, such emotional distress is not easily recognized by sports medicine professionals and may go undetected.

Several risk factors for emotional distress following sport injury have been identified.

Young athletes and athletes who are strongly invested in the athlete role as a source of self-worth tend to experience higher levels of emotional disturbance than those who are older and for whom being an athlete is a less central or exclusive aspect of who they are as a person.

Athletes tend to experience greater emotional disturbance when their injuries are severe or long-lasting and when their recovery progress has been slowed.

Hardy athletes and those who are satisfied with the social support they are receiving from others tend to experience low levels of emotional disturbance following injury.

The timing of injuries in the competitive sport season also seems to play a role in the magnitude of emotional disturbance, as injuries that preclude training for or participation in important events may elicit especially strong emotional reactions.

http://www.thepathmag.com/how-do-you-come-back-from-the-emotional-blow-of-a-sports-injury/

Performance Expectations

Participants / athletes discussed the importance of realistic performance expectations (e.g., attaining specific goals or performance levels) during the first game back.

Several athletes believed they possessed realistic performance expectations, which they attributed to the information they received from health care providers and to previous experiences returning to sport after injury.

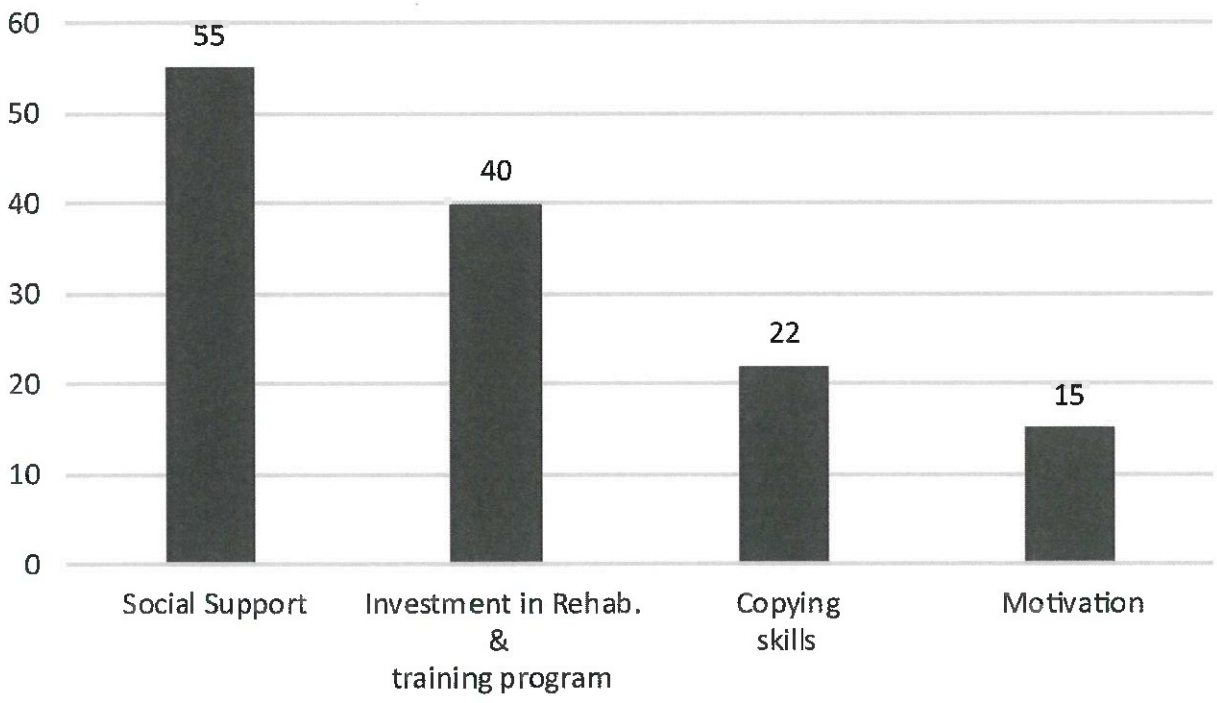
Such information and past injury experiences helped athletes realize that a return to pre-injury levels would likely take some time.

For instance, an athlete commented that:'' the transition from rehabilitation to competitive performance did not happen immediately but was more of a gradual progression''.

In support of this contention, athlete stated: "I knew that during my first game my movement would have been slower, less fluid, than under normal conditions. You have to be honest with yourself about your initial performance after injury".

Despite frustrations over a disconnect between athletes' actual and desired initial performance, participants / athletes still believed that their first game back was important in providing a test or check of their actual readiness levels to resume competitive basketball.

The comments of athlete typified this idea: "only when an athlete is going to play his first official game, can he really check his state of psychological readiness."



Number of raw data themes for each general dimension during Period 1. Professional Basketball Players Perceptions of Psychosocial and Behavioral Factors Influencing a Return to Pre-injury Levels

CHAPTER FIVE

V. Discussion

The purpose of the current study was to explore athlete perceptions of the psychosocial and behavioral factors facilitating (or hindering) a return to pre-injury performance levels.

The study makes important contributions to the literature in several respects.

To the best of my knowledge, this was an investigation analyzing the experience of returning to performance using a specialized sample of professional athletes, individuals who were successfully able to achieve or surpass their Frontiers in Psychology.

Return to Pre-injury levels of performance in a secured and fast way for an athlete (emphasis given in basketball players) was the ultimate goal and the purpose of the aforesaid thesis.

Second, this investigation provides relevant insights into the psychological factors which top-level athletes deem essential in achieving a return to performance equal to or exceeding previous performance standards.

Third, the consideration of three time-periods allowed to examine the psychosocial factors that athletes believe facilitated (or hindered) the return to performance (i.e., the same or higher pre-injury level).

Fourth, this retrospective approach enabled me to ascertain athlete views among those who experienced the "ups and downs" of a return to performance and who had the benefit of "perspective" in thinking about their experiences.

Fifth and finally, from a practical standpoint, understanding the relationship between psychosocial and behavioral factors and return to performance could assist injured athletes and

practitioners in addressing critical factors during rehabilitation that maximize the likelihood of achieving or surpassing preinjury levels.

A novel aspect of the study was that such experiences were examined in relation to specific time points/periods following the completion of athletes' formal rehabilitation.

An elite sample of professional Italian basketball players who had successfully returned to and/or surpassed pre-injury levels provided original insights into questions of interest.

Consistent with assumptions from the Integrated Model (Wiese Bjornstal et al., 1998), athletes emphasized the importance of situational (i.e., social support) and personal (i.e., investment in rehabilitation and training programs, coping skills and motivation) factors in describing their perceptions of a return to competition (i.e., Period 1).

Specifically, athletes recognized the importance of emotional and motivational support received from family, friends, and teammates, especially those who had sustained a similar injury.

Of particular relevance to basketballers was the vital support provided by doctors, physiotherapists and athletic trainers.

This finding echoes past research in which athletes indicated greater satisfaction with and support received from these practitioners in comparison with coaches or fellow athletes (e.g., Clement and Shannon, 2011; Fernandes et al., 2014).

In particular, the current study suggests that support from qualified professionals could be instructive in providing information and education about return-to-competition processes, which could in turn, promote greater perceptions of control and knowledge about what to anticipate upon one's return to sport.

Further research examining the benefits of informational support for athletes transitioning back into the competitive arena is warranted.

Participants also reinforced the necessity of adhering to prescribed rehabilitation exercises and guidelines, a finding reinforcing previous research demonstrating the importance of rehabilitation in facilitating psychosocial / physical rehabilitation outcomes and a greater likelihood of return to pre-injury levels (Wiese-Bjornstal et al., 1998; Levy et al., 2008; Marshall et al., 2012).

In contrast with reports of suboptimal adherence rates among athletes (Arvinen-Barrow and Walker, 2013), participants in the current study reported high levels of investment in their rehabilitation and acknowledged the critical importance of following practitioner recommendations and guidelines in achieving pre-injury levels.

While objective / actual measures of adherence were not taken in the current study, interview data nonetheless reinforce the benefits of patient engagement in rehabilitation and underscore the crucial role of both patients and practitioners in facilitating adherence.

Towards this end, educational programs, goal setting strategies, and effective communication techniques may all be pivotal (Heil, 1993; Evans et al., 2000), in increasing patient adherence and increasing the likelihood of an effective return to sport.

Considering the multitude of return to competition stressors, it was no surprise that athletes articulated the value of various coping skills.

Although research in the area of coping skills has focused primarily on their use in mitigating injury risk (Williams and Andersen, 1998), findings reveal the importance of coping skills throughout the rehabilitation and return-to-sport time frames.

A salient finding described by participants was the relevance of both intra-individual coping resources, that is trait-like tendencies (e.g., patience, optimism) and intentional coping strategies (e.g., rational thinking, problem-solving, having other interests, planning) that athletes perceived as beneficial in enabling a return to high performance standards.

Such findings reinforce previous work suggesting that elite athletes possess personality attributes that allow them to surmount difficulties such as a return to sport following injury (Johnson, 1997) and that injured athletes typically employ active coping strategies (Quinn and Fallon, 1999).

From a practical standpoint the coping findings from the current study, suggest the value of encouraging athletes to use pre-existing coping resources and to employ a range of active coping strategies as they transition back into competitive sport.

Building on past research examining the role of motivation in athletes' return to sport following injury (e.g., Podlog and Eklund, 2005), findings from the current study also emphasized the role of intrinsic motivation in energizing athletes to overcome the challenges inherent in the return to sport.

These findings support a wealth of motivational research demonstrating the adaptive qualities of intrinsic motivation in facilitating persistence and promoting positive health, well-being and performance outcomes (e.g., Ryan and Deci, 2000).

Further research examining the role of various forms of motivation (e.g., intrinsic, extrinsic) in predicting return-to-sport outcomes (e.g., objective performance indicators, competitive anxiety, concerns about re-injury) would be beneficial.

In discussing their experiences during their first official competition (Period 2), a range of positive and negative experiences were expressed.

A key finding receiving limited attention in previous research, related to basketballers' reflection that part of their confidence upon the return to competition was a result of their beliefs in the abilities of their rehabilitation specialists and their prescribed rehabilitation regimens.

Implicit in the participants' comments is the notion of "other-efficacy," that is, an individuals' beliefs regarding the skills and abilities of significant others with whom they interact (e.g., coaches; physiotherapists; Lent and Lopez, 2002).

Research examining other-efficacy beliefs suggests that higher other-efficacy has beneficial implications for an individuals' self-efficacy as well as other interpersonal outcomes such as the quality of relationships with significant others (Dunlop et al., 2011).

In a rehabilitation frontier in Psychology.

Return to pre-injury levels in Basketballers context, only a handful of studies have examined the implications of other-efficacy beliefs for rehabilitation outcomes as well as the quality of patient-practitioner relations (Jackson et al., 2012; Greviskes et al., 2018).

That professional athletes in the current study suggested the importance of beliefs in the skills and abilities of their rehabilitation practitioner, indicates the potential significance of other-efficacy beliefs for enhancing rehabilitation and return-to-competition outcomes.

Further work examining relationships between other-efficacy beliefs and such outcomes could have important implications for the development of interventions aiming to increase athlete efficacy upon a return to competition following injury.

Despite the fact that athletes believed in the competence of their rehabilitation practitioners, the efficacy of their prescribed rehabilitation regimens, and the fact that a return to preinjury

levels was an ongoing process, all participants nonetheless indicated a lack of satisfaction with their initial competitive performance.

In particular, participants consistently reported a dearth of confidence in their ability to effectively execute skills and the presence of dysfunctional physical sensations.

This apparent paradox has not been reported previously; it suggests that although athletes may perceive themselves to be psychologically ready, the experience of performing and competing may provide information to the contrary.

It is also worth noting that even the two athletes who reported functional skill execution, later recognized that they overestimated their initial abilities, something they attributed to the euphoria of playing again.

Consistent with tenets in the Integrated Model (Wiese-Bjornstal et al., 1998) this finding suggests that cognitive appraisals may fluctuate and vary over the course of athletes return to competition.

From a practical standpoint, this finding indicates there may be psychological value in athletes taking the benefit of time and "distance" before drawing conclusions about the effectiveness of their return or the quality of their overall performances.

Apprehension about one's performance and fear of re-injury were also commonly reported emotions during the initial competition.

Substantial research has shown these emotions to be salient among athletes transitioning back into competition (Carson and Polman, 2012; Brewer and Redmond, 2017) and are two of the most commonly cited impediments for not returning to pre-injury levels (Ardern et al., 2011).

Collectively these findings reinforce the importance of helping athletes overcome their fears using emotional support, communication strategies and psychological interventions such as imagery or relaxation exercises (Chase et al., 2005).

In addition to negative emotions and challenging experiences athletes also reported various positive experiences and factors facilitating successful initial performance.

A seldom reported finding in the return to sport literature related to athletes' attentional focus.

While two participants indicated a focus on the site of the injured area, the remaining athletes reported an external, more functional focus on performance tasks, the game plan, competitive goals, and their opponent.

Researchers have demonstrated that attentional allocation is a critical predictor of performance (Wulf and Prinz, 2001; Janelle and Hatfield, 2008; Christakou et al., 2012; Di Corrado et al., 2015).

Evidence also supports the contention that sport injury can induce an internal focus on the injury site and shift the performer's attention away from essential performance cues, the latter of which may lead to decrements in performance (Taylor and Taylor, 1997; Heil, 2000; Boutcher, 2007; Gray, 2015).

Indeed, Gray's (2015) experimental work revealed that athletes recovering from injury had an internal focus of attention when executing skills which resulted in performance declines.

Gray argued that "a return to a high level of performance will require the re-adoption of an external focus of attention" (p. 615).

My findings indicate that sport scientists and health professionals should evaluate the selective attention of returning athletes, and when necessary, provide attentional retraining (Gray, 2015) to help athletes remain focused on crucial performance elements.

Consistent with previous research (Podlog et al., 2015), athletes articulated the importance of realistic performance expectations in facilitating the attainment of pre-injury performance levels.

Evidence suggests that many athletes have difficulties lowering their expectations and may expect an immediate return to preinjury performance levels (Taylor and Taylor, 1997; Weinberg and Gould, 2011).

In the study, athletes reported that the development of realistic expectations, was largely contingent on information received from physiotherapists and athletic trainers during the rehabilitation period.

Basketballers indicated that the information and guidance they received from health professionals during rehabilitation was invaluable in helping them understand and accept the gap between their preinjury capabilities and those occurring during their first official game.

It may be that the combination of basketballers feeling well-informed and having realistic expectations, mitigated feelings frustration or discontent associated with perceptions of poor initial performances.

From an applied standpoint, results from the current study suggest that educating athletes about potential return to sport scenarios may be instrumental in helping create realistic performance expectations, which may in turn, help reduce the intensity and/or frequency of negative emotions associated with poor initial performances.

Although expectancy beliefs have been shown to predict a range of downstream outcomes (e.g., Zhu and Chen, 2013), they have received scant empirical attention in a sport injury context.

Further research examining the influence of athlete expectations about an upcoming return to competition on return outcomes (e.g., competitive anxiety, confidence in skill execution, objective post-injury performance) would be beneficial.

A return to pre-injury competitive levels was also facilitated by athletes' self-reported ability to moderate their arousal levels. Specifically, the ability to self-regulate one's arousal was believed to be valuable in interpreting one's activation as facilitative rather than debilitative.

Indeed, it has been widely recognized that optimal arousal is required for athletes to reach peak performance (Kamata et al., 2002; Bertollo et al., 2012; Di Fronso et al., 2017) and that the arousal reappraisal is consistently linked to more adaptive stress responses and superior performances (Sammy et al., 2017).

Consequently, findings from the current study Frontiers in Psychology | www.frontiersin.org 12 February 2019 | Volume 10 | Article 222 fpsyg-10-00222 February 7, 2019 Time: 3:0 # 13 Conti et al. Return to Pre-injury Levels in Basketballers suggest the need to improve athletes self-monitoring and self regulation abilities, so that they can effectively modulate arousal levels, particularly during challenging situations such as the first game back following an extended injury layoff.

Gradually, during the 6 months following their first official competition (Period 3), all athletes experienced a return to performance equal to or exceeding previous performance standards.

Over time, athletes reported progressive increases in effective skill execution, and positive physical sensations, both of which were instrumental in increasing confidence in their performance capabilities.

Athletes emphasized the critical importance of regaining confidence in their abilities, something which is typically diminished in the injury aftermath (Heil, 1993; Podlog and Eklund, 2006).

Additional inquiry examining the use of specific confidence building strategies for returning athletes holds promise for future research.

Despite the valuable findings from the current study, a number of limitations are evident that could be addressed in future research.

First, given the qualitative nature of the investigation, caution is warranted in generalizing the findings.

As such, further quantitative exploration of specific findings described above, would be beneficial.

Second, since the experience of professional athletes may differ significantly to that of recreational performers and exercisers (Andersen, 2001), researchers should examine the experiences of players of different competitive levels.

Third, researchers should also consider the role of other personal (e.g., gender, injury type) or situational characteristics (time of injury in the season) highlighted in the Integrated model on athletes' psychological appraisals and experiences in returning to sport following injury.

Fourth, in an effort to determine the factors distinguishing effective from ineffective returners, it would be instructive to investigate the experiences of injured athletes who failed to return to pre-injury levels or quit their sporting activity.

Fifth and finally, while adopted a retrospective design in order to ascertain information from athletes who had already returned to competition, prospective designs could also be useful in enabling athletes to articulate their experiences close to their actual occurrence.

Despite these limitations, findings from the current investigation lend important insights into the factors involved in regaining and/or surpassing pre-injury performance levels.

In particular, the presence of certain psychological factors such as confidence in one's own performance capabilities and that of rehabilitation providers, coping skills, intrinsic motivation, social support (particularly emotional and information), functional physical sensations, and effective skill execution may all be vital in regaining or surpassing pre-injury performance standards.

Results also suggest that returning to high levels of performance is a complex, non-linear process involving a combination of positive and negatively valanced experiences unfolding over weeks and months.

Findings from the current study provide valuable insights into the personal and situational factors which can be influenced and shaped in order to facilitate a successful return to competition following injury.

Strategies for Addressing Athletes' Return-to-Sport Stress Sources Given that:

(a) Athletes may commonly experience competence, autonomy, and relatedness type stressors, and that

(b) Self-determination research supports the benefits of enhanced competence, autonomy, and relatedness, it may be useful to structure programs in ways that meet these three basic needs.

Based on this assumption, the following suggestions are offered to coaches and practitioners as a guideline for meeting both the physical and psychological needs of returning athletes. Address issues of competence help establish realistic expectations.

Having discussions with athletes about what they hope to achieve and how they expect to perform following their return may be useful for revealing unrealistic goals and expectations.

Recognizing that making a return to sport is a gradual process may help athletes avoid creating overly high expectations that in turn lead to frustration, decreased confidence, and negative social comparisons.

Expecting "too much too soon" (which is not uncommon among elite athletes) may often lead to a sense of frustration, reduced confidence, and ultimately poorer performances (Bianco, 2001; Podlog & Eklund, in press).

Encouraging athletes to create realistic expectations upon returning to sport is important.

Develop short-term process goals.

Encouraging athletes to focus on short-term process (i.e., task-oriented) goals upon their initial resumption of sport-related training may be a useful way to help them build competence in their physical and mental capabilities.

Providing them with as many opportunities as possible to experience success may assist them in avoiding a sense of frustration and decreased confidence should they struggle to immediately return to pre-injury form (Gilbourne & Taylor, 1998).

Assist athletes in overcoming return-to-sport fears and building confidence.

The two most common fears associated with a return to sport appear to be a fear of re-injury and concern over not performing to pre-injury levels.

Providing athletes with progressive physical challenges that they can successfully meet without physical pain can enhance their sense of competency regarding their capabilities and their bodies' ability to remain uninjured (Cox, 2002).

Reassuring athletes that they have met all the physical requirements necessary for their return may help alleviate concerns about re-injury and performance issues.

Finally, discussion of return-to-sport fears or concerns can provide an opportunity to dispel irrational beliefs and to "get out in the open" any issues the athlete might have (Cox, 2002; Taylor et al., 2003).

Provide athlete role models.

Putting returning athletes in contact with other athletes who have experienced and overcome similar injuries may be highly beneficial for the returning athletes' level of confidence.

Having models who have come back from a similar injury may give athletes returning from injury a sense that if others can do it, so can they (i.e., "seeing helps believing") (Flint, 1993).

Address issues of autonomy discuss motivations to return to sport.

Having a discussion with athletes prior to their return to training and competition about why they are returning may help the practitioner establish which athletes are returning for the "wrong" reasons (e.g., pressure from a coach or teammate; guilt about missing an important competition the athlete does not feel prepared to compete in).

Previous research by Podlog and Eklund (2005) revealed that an athlete whose motivation to return to sport was more self-determined (e.g., the love of the Return to Sport Transition Following Serious Injury 28 CSU Research Output http://researchoutput.csu.edu.au sport) appeared to have ameliorated psychological outcomes in returning (i.e., a renewed perspective on sport) than an athlete whose motivations were less self-determined (e.g., returning in order to demonstrate one's skills to others).

Help ensure the autonomy of the returning athlete.

Given that athletes may be susceptible to receiving pressure to return to sport (and that they typically want "freedom from pressure"), coaches and medical practitioners need to ensure that athletes have the freedom to return at a time and manner of their own choosing (Bianco, 2001).

Thus, coaches need to be aware of any personal tendencies toward pressuring the athlete or creating feelings of guilt during his or her return.

Additionally, physiotherapists, athletic trainers, or medical practitioners may be ideally positioned to act as mediators between athletes and those encouraging them to return possibly before they are physically or psychologically prepared to do so.

Having the time to recover from their injury and slowly progress will not only meet the autonomy needs of returning athletes but will provide them with a sense of confidence that they are healed and ready to perform at a high level.

Taylor and Taylor's (1997) Stages of Return to Sport model may serve as a useful reminder of the various stages in which athletes should progress en route to a successful, healthy, and satisfying return to sport from injury.

Address issues of relatedness keep athletes involved in sport.

Staying involved with the team during the injury rehabilitation may help team sport athletes as they make the transition from injury to training and competition.

Injured athletes often miss the social aspect of their sport participation.

Staying in contact with the team can provide athletes with a sense of connectedness and provide them with the opportunity to observe, learn, and analyze their sport from the sidelines (Ermler & Thomas, 1990).

Research by Tracey (2003) as well as recent research with coaches, however, indicates that coaches and others may need to be cautious about attempts to keep athletes involved in sport.

Injured athletes have suggested that attending practice may provoke concerns about fitness loss, remind athletes of their participation restrictions, and reinforce beliefs about letting down their team simply by watching (Tracey, 2003).

Ensuring that athletes are given meaningful interaction opportunities (e.g., participating in team activities where they can be physically active such as weight training) may help mitigate feelings of frustration over not being able to participate, not contributing to the team, or not having a particular team role/function.

Additionally, recognizing that individual differences may be apparent in terms of the extent to which athletes want to be involved with their teammates (specifically in terms of practice attendance) and the degree to which such involvement is psychologically beneficial may be important.

Hold individual training sessions with athletes.

Taking the extra time to work on a one-to-one basis with athletes making the transition back into sport can help to remind athletes that coaches are concerned about their well-being.

Not only can this have the potential to meet athletes' needs for connectedness, but it can provide coaches with opportunities to monitor athlete activities, introduce skills gradually, assess athletes' physical conditioning, and give athletes skill-related feedback. Provide athletes with social support.

Providing athletes with various types of social support can also be highly beneficial in meeting their relatedness needs.

A good deal of empirical research has found support for the notion that social support among athletes recovering from injury may lead to enhanced psychological functioning and ameliorated recovery outcomes (e.g., see Bianco & Eklund, 2001 for a review).

Canadian national team skiers reported that support from coaches was important in holding them back, helping them set realistic performance expectations, building confidence, and recognizing improvements (Bianco, 2001).

Providing athletes with emotional support by taking a personal interest in them and providing positive encouragement can go a long way to meeting their needs for connectedness. Similarly, providing athletes with tangible (e.g., assistance with goal setting) and informational support (e.g., video analysis) can send the implicit message that coaches are willing to facilitate athletes' return to sport from injury.

Type of psychological intervention	**Effect on athletes**
Educational intervention	- - resistance to collaborate - anxiety - depression + self-confidence
Goal setting	+ + treatment motivation and satisfaction + + self-confidence - anxiety
Imagery for performance	+ + self-confidence + + sport skills + + muscular activation (circulation)
Imagery for rehabilitation	- - anxiety + + coping strategies - - stress - - muscular tension
Self talk based intervention	- - negative cognitions - depression - anxiety
Biofeedback	+ + self-confidence - - negative cognitions - - anxiety + muscular strength
Social support based intervention	+ + coping strategies + + self-confidence + + treatment motivation and satisfaction - - depression - - anxiety

++ indicates a strong increase
+ indicates a minor increase
- indicates a minor reduction
-- indicates a strong reduction

The biopsychosocial model (Brewer, 2007, 2009)

VI. Conclusion

The psychological skills and psychological techniques developed above have to do with sports psychology, the sports psychology has as its object of study the psychological foundations of the physical activity of athletes, it is addressed to all athletes looking at ways to increase performance but also their personal balance and improvement.

Sports psychology tries to teach athletes to think smart in training and in the struggle to control their emotions and stress to believe in themselves and their strengths.

The sports psychology is not only interested in maximizing performance but also in improving athletes in general.

The field of sports psychology in general but also the importance of psychological preparation and their integration in the coaching process are widely accepted for integrated development of the athlete.

The increase of athletic performance and the rapid progress of the competitive developed the process of preparing athletes.

The existing knowledge in the field of sports psychology allows he creation and implementation of comprehensive training programs for psychological skills that can contribute positively to maximizing athletic performance and in the personal improvement of the athlete.

Rehabilitation specialists can be more effective in the program they formulate each time, if they apply simple and appropriate counseling techniques to the injured person athlete that can be done with his own participation.

These techniques help their athletes deal with pain and negativity emotions and maintain a high level of motivation in all its phases rehabilitation and all the challenges they face.

Starting from the understanding of the challenges-obstacles that the athlete faces in during the rehabilitation, it is recommended that the specialist apply appropriate techniques:

- In the phase of regaining the range of motion, the training of the athlete in his species is suggested pain, progress tracking, goal technique, relaxation and mental imaging, as well as information about the set-in performance.
- In the next phase, which concerns the improvement of the stability of the joint, the mental illustration, relaxation as well as positive self-dialogue.
- In the phase of muscle strengthening, the application of the technique of setting goals is suggested and of positive self-dialogue.
- Finally, in the phase of functional reintegration, the direction of attention is considered necessary in positive messages, goal setting and self-dialogue

Sports psychology has emerged as a field with a research tradition that provides a foundation for direct application with athletes.

As the role played by psychological factors in the performance and overall well-being of athletes has become better understood, interventions have been designed to favorably affect athlete behavior throughout their involvement in sport and beyond.

Although practiced widely among elite athletes in many sports, sport psychology is still gaining acceptance.

With further expansion of the field comes the potential to help ensure that the psychological needs of athletes at all levels of competition are addressed.

Interestingly, those strategies that seem to work best are those geared toward the regulation of stress and fear in the patient.

The individuals who recover as planned seem to have psychological profiles that facilitate recovery.

Factors that have been shown to contribute to adherence to the rehabilitation regimen have included high levels of motivation, task involvement, pain tolerance, and perceived exertion.

It is critical to the ultimate goal of recovery and return to competition that athletes be rehabilitated both physically and psychologically.

Yet, most coaches, athletic trainers, and athletes lack both the knowledge and the skill concerning psychological rehabilitation.

If cognitive, emotional, and behavioral manifestations associated with the injury lead the sports medicine practitioner to believe that the patient's progress is hampered, psychological intervention becomes a must.

A timely referral to a sport psychologist allows for prompt management and relief from any undue emotional distress. Most of all, an immediate referral permits a timely handling of the existing psychological problems, can prevent further psychological complications, and fosters positive psychological states known to accelerate the healing process.

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